THE MEDICAL JOURNAL OF AUSTRALIA

VOL. I.—33RD YEAR. SYDNEY, SATURDAY, JUNE 15, 1946. No. 24.

Table of Contents.

[The Whole of the Literary Matter in THE MEDICAL JOURNAL OF AUSTRALIA is Copyright.]

ORIGINAL ARTICLES— Page.
Some Notes on the Treatment of Pulmonary Tuberculosis, by C. J. Officer Brown .. 825
Recent Experiences in Canada and the United States, by H. M. James .. 827
Psychotic Casualties in New Guinea, with Special Reference to the Use of Convulsive Therapy in Forward Areas, by David Ross .. 830
Congenital Fibrocystic Disease of the Pancreas, by P. E. Blaubaum, M.B., B.S. .. 833
Backache in Soldiers, by Douglas Stuckey .. 838
Blood Loss in Cæsarean Section, by Lois Benson, M.B., B.S. .. 842
Chronic Vesiculitis as a Factor in the Production of Non-Gonococcal Urethral Discharges, by Charles E. Marshall .. 846

REVIEWS—
Clinical Pathology .. 848
Clinical Surgery .. 848
Orthopædic Operations .. 848

LEADING ARTICLES—
Women in Medicine .. 849

CURRENT COMMENT—
Lesions of the Mouth and Iron Deficiency .. 850
The Toxicity of Thiouracil .. 850

ABSTRACTS FROM MEDICAL LITERATURE—
Radiology .. 852
Physical Therapy .. 853

BRITISH MEDICAL ASSOCIATION NEWS— Page.
Scientific .. 854
Notice .. 855
New South Wales Branch News .. 855

NAVAL, MILITARY AND AIR FORCE—
Appointments .. 857

POST-GRADUATE WORK—
Lectures at Sydney .. 859
Film Afternoon at Sydney .. 859

CORRESPONDENCE—
Psychotherapy .. 859

OBITUARY—
Cyrus Bath Retallack .. 859
Ernest Weston Sutcliffe .. 859
Harold Whitridge Davies .. 859

NOMINATIONS AND ELECTIONS .. 859

THE FEDERAL MEDICAL WAR RELIEF FUND .. 859

BOOKS RECEIVED .. 860

MEDICAL APPOINTMENTS .. 860

DIARY FOR THE MONTH .. 860

MEDICAL APPOINTMENTS: IMPORTANT NOTICE .. 860

EDITORIAL NOTICES .. 860

SOME NOTES ON THE TREATMENT OF PULMONARY TUBERCULOSIS.[1]

By C. J. OFFICER BROWN.
Melbourne.

IT has recently been my good fortune to visit many of the centres for the treatment of pulmonary tuberculosis on the North American continent. In some of these centres staff shortages have limited their recent activities, and in some there is still a shortage of beds; but everywhere one found a lively appreciation of the importance of the problem, and real efforts were being made to overcome the difficulties. In practically all the places I visited all forms of tuberculosis are treated in the same institutions. It is recognized that bed rest is the basis of treatment for all forms of tuberculosis, and since bovine disease has been practically eliminated, the source of infection in all cases is the subject with an "open" pulmonary lesion. Control by one authority makes it easier to trace contacts and eliminate sources of infection.

The Treatment of Pulmonary Tuberculosis.

Bed rest still remains the most important factor in the treatment of practically every patient with pulmonary tuberculosis; but often its value is enhanced by collapse therapy, which is used in from 50% to 80% of cases in many places. Collapse therapy is not an alternative to rest for patients with active tuberculosis, and although its use may shorten the period of absolute rest, it should never be allowed to take its place. Recently resection has been used for some patients, and streptomycin may prove of great value.

Max Pinner has stated that the final test of any treatment is its survival, and judging by this test he believes that it is fair to say that no medicinal or chemotherapeutic treatment has proved its worth. The only established treatments of proven value are bed rest, pneumothorax and thoracoplasty and some of their auxiliary or modified techniques. Resection is too new for evaluation by this test. Streptomycin has not yet passed the experimental stage; but it has shown more promise than any other drug that has yet been tried, and it opens up a real hope that in the not too distant future we may have a drug that will at least control some of the activities of the tubercle bacillus.

Indications for Collapse Therapy.

Collapse treatment is indicated for patients with progressive lesions, for those whose condition fails to improve with bed rest alone, and when cavitation is present. Usually a period of bed rest and observation should precede any attempt at collapse therapy, even when the indications are well defined. This delay allows the patient to adjust himself to the sanatorium routine and allows the physician time to assess the character of the patient and his disease; but it is wrong to wait for months unless it is apparent that collapse treatment is not required or would be of no avail.

Methods of Collapse Therapy.

Pneumothorax is the method most generally useful and is usually tried first. It is technically impossible in 25% of cases, and in another 20%, although a space is found, the collapse is contraselective and cannot be made selective by pneumolysis and must be abandoned. Satisfactory collapse is thus obtained in only about 55% of the cases in which it is indicated.

A satisfactory pneumothorax must deflate the diseased area, and if a cavity is present this must be relaxed, and should be immediately or steadily reduced in size and ultimately disappear. If this local result is not obtained, the pneumothorax is not doing its job and should be abandoned. Sometimes an unsatisfactory pneumothorax

[1] Read at a meeting of the Victorian Branch of the British Medical Association on April 3, 1946.

can be made satisfactory by adding a phrenic paralysis and possibly pneumoperitoneum as well, and in other cases in which artificial pneumothorax is impossible or ineffective, these methods may offer the only available form of collapse therapy.

About 10% of all patients with pneumothorax develop empyema, and a further small percentage of patients are left with a lung that will not reexpand; for this reason no pneumothorax that is not really helping the patient should be continued.

Thoracoplasty.

Thoracoplasty is often looked on as a barbarous procedure with a high mortality rate, producing great deformity and considerable crippling of lung function. This is wrong. The operation has a mortality rate of under 5% in well selected cases, and unless it has to be extensive produces no noticeable deformity in the clothed patient. In America I met a number of doctors working in sanatoria who had had thoracoplasties, and I did not know it until they told me. In most of the reported series thoracoplasty results in control of the disease in 70% of cases. The respiratory crippling that is sometimes seen is a result of the disease or an attempt to use thoracoplasty for patients who have not sufficient reserve for any form of collapse therapy in a desparate effort to salvage the doomed. In doubtful cases the respiratory and cardiac functions should be carefully tested; if this was done, unexpected respiratory crippling would be rare. With bronchospirometry we can estimate the function of each lung separately and can form an accurate opinion concerning the disability that may result from putting the whole or portion of a lung out of action. In some cases in which compensatory over-expansion of the normal lung tissue occurs, reduction in the size of the chest cavity may actually increase the patient's vital capacity by allowing relaxation of the over-expanded lung.

Pneumothorax in 10% to 20% of cases results in total loss in the function of the lung collapsed, and it has been shown by bronchospirometry that even in the lungs that are apparently completely reexpanded after pneumothorax there is often a considerable loss of function. This being recognized, it is becoming more and more the practice to use throacoplasty as a primary procedure for patients with limited apical lesions as an alternative to pneumothorax, when the lesion is not in an actively progressive phase. This has the advantage of avoiding the not inconsiderable risks of pneumothorax, and relapse following thoracoplasty is less common than after pneumothorax. Further, the resultant functional disability can be fairly accurately assessed and is frequently much less than would be likely after pneumothorax. In cases chosen for primary thoracoplasty the operation should be selective, and only five, six or at most seven ribs should need to be resected.

Tracheo-bronchial Tuberculosis.

In recent years the importance of tuberculous tracheobronchitis has been increasingly recognized. In practically every case of tuberculosis there is some extension from the parenchymal focus along the small draining bronchi, and in many cases the tuberculous process may extend into lobar bronchi or even into the main stem bronchi and the trachea. The mucosa of an involved bronchus becomes œdematous and may ulcerate, and granulomatous areas may form. Bronchial narrowing and occlusion result from œdema, from granulomatous masses, from contracture of healing ulcerous areas and from the presence of viscid sputum in the narrowed bronchi.

Tracheo-bronchitis increases the tendency to cough, and as a result of this the risk of endobronchial spread is increased, and it interferes with aeration and drainage of the involved segment of the lung.

Interference with aeration is shown by the following observations: (i) obstructive emphysema, (ii) ballooning of a cavity, (iii) supra-atmospheric cavity pressure, (iv) sudden changes in the size of a cavity, (v) atelectasis, (vi) shrinkage of pulmonary tissue from under-aeration, (vii) complete collapse of a lobe or a lung, (viii) evidence of considerable difference between the right and left intrapleural pressures—for example mediastinal hernia or pronounced pendulum movement of the mediastinum during respiration as observed by fluoroscopy.

Interference with bronchial drainage is shown by the following: (i) episodes of sputum retention, (ii) pronounced and sudden fluctuations in the amount of sputum, (iii) fluid level in a cavity, (iv) blocking of a cavity.

The importance of the tracheo,-bronchial factor depends on the following: (i) the size of the bronchi involved, (ii) the type of obstruction produced—for example, complete, check-valve, (iii) the presence of secondary infection distal to the block.

Complete obstruction of a small lobular bronchus will be followed by absorption of air and disappearance of cavities distal to the block, with atelectasis of the segment and probably ultimate fibrosis and healing. On the other hand, if the block is of the check-valve type, allowing air to enter and not to escape, the cavity will enlarge and may develop a positive pressure. When the state of obstruction is variable, cavities may appear and disappear with bewildering rapidity. It will be appreciated that tuberculous bronchitis of the smaller tubes may thus be benign or malign; but when it involves major bronchi its influence is almost always malign. Sometimes an upper lobe may shrink and become atelectatic, with closure of cavities and healing of the disease; but more often when bronchi of this size are involved, the factors of inflammatory exudation and sputum retention are added, and we get the apparent contradiction of an airless lobe with wide open cavities. Bronchiectasis often follows, and anaerobic infections may occur as they do in other forms of bronchostenosis and bronchiectasis.

In the presence of tracheo-bronchitis, surgical collapse methods may alter the type of obstruction. If a free airway is converted into a check valve, the cavity will enlarge, and if complete obstruction results, the involved segment will shut down and unless the block clears it will never reexpand. If pneumothorax is used a ballooning cavity is dangerous and the attempt should be abandoned. If a whole lung or even a lobe becomes "atelectatic" and airless after pneumothorax, an empyema is very likely to occur, and if the patient escapes this hazard he is almost certain to be left with an inexpandable lung. Although good results do sometimes follow the use of pneumothorax in the presence of tracheo-bronchitis of major bronchi, the risks are great, and most authorities feel that this form of collapse therapy is contraindicated in these cases.

Phrenic paralysis is usually better avoided in the presence of recognizable tracheo-bronchitis, because it is likely to increase the difficulty of raising sputum, and once the phrenic nerve has been crushed nothing can be done about this until it recovers in six to eight months' time.

When an upper lobe bronchus alone is involved, thoracoplasty may be used so long as it is performed before the development of anaerobic infection, and early collapse by thoracoplasty in these cases should give a high percentage of good results. Stenosis of stem bronchi or of lower lobe bronchi may be treated by dilatation and silver nitrate applications, and if the bronchitis heals and drainage and aeration are restored, pneumothorax or phrenic paralysis may be in order. If putrid infection has supervened or if drainage and aeration cannot be restored, the only treatment for the patient with stenosis of a stem bronchus or a main lower lobe bronchus is resection.

Symptoms of tracheo-bronchial tuberculosis are: (i) wheeze, (ii) excessive cough without effective raising of sputum, (iii) sputum retention, (iv) dyspnœa, (v) pain.

Bronchoscopy.

With the recognition of the importance of tracheobronchial tuberculosis, bronchoscopy has become a routine measure in the assessment of patients for collapse therapy. In some centres no collapse is instituted until the patient has been bronchoscopically examined, and at the Weston Sanatorium in Toronto where this practice is adopted, I was informed that unsuspected tracheo-bronchitis, sufficient to contraindicate pneumothorax, was found in 10% to 15% of patients. In other centres bronchoscopy is used only when tracheo-bronchitis is suspected from the

clinical condition of the patient. John Alexander and his associates use bronchoscopy in about 80% of their cases, and are insistent on the importance of the recognition and treatment of bronchial disease before thoracoplasty. It is obvious that bronchoscopy allows us to examine only the trachea, the stem bronchi, the lower lobe branches and the orifices of the branches to the upper lobes; but since it is in these areas that the influence of tracheo-bronchitis is particularly malign, the value of bronchoscopy is very great.

Resection of Pulmonary Tissue.

Resection of pulmonary tissue for non-tuberculous conditions became a practical procedure with a reasonable mortality rate only about sixteen years ago. In 1935 Friedlander reported a successful upper lobe lobectomy for tuberculosis, and in the next few years several other reports appeared. The mortality rate was high, and the incidence of serious complications, such as contralateral spread, empyema and bronchopleural fistula, was prohibitive. In 1942 Thornton and Adams reviewed the literature and concluded that the resection of lung tissue was hazardous in the presence of tubercle bacilli in the sputum. Recent experiences have been much more favourable, and with the introduction of the individual ligation technique for dealing with the pedicle and of improved methods of closng the bronchial stump, empyema and bronchial fistulæ have become rare.

On October 17, 1945, Dr. Richard Overholt informed me that he had carried out 161 resections for tuberculosis, and that in the last 61 cases there had been only three deaths in any way attributable to the operation. Maier has reported a series of 16 lobectomies performed on patients with tubercle bacilli in the sputum, with one death. Overholt is enthusiastic, and tends to use resection in many cases in which thoracoplasty would probably be successful. Churchill and Klopstock successfully resected lobes in four cases in which thoracoplasty would ordinarily have been performed. Maier and some others are using resection only in cases in which thoracoplasty has failed or would almost certainly be unsatisfactory. It is impossible at present to foretell the role that resection will play in the treatment of this disease; but I should like to indicate some types of patients for whom it may offer the best chance of health: (i) patients with bronchostenosis and putrid infection; (ii) patients with large tuberculomata; (iii) patients whose cavities have failed to close after thoracoplasty; (iv) patients with lower lobe cavities which have failed to respond to pneumothorax and/or phrenic paralysis and pneumoperitoneum; (v) patients with tension cavities in unilobar or extensive unilateral disease.

Thirty *per centum* of thoracoplasties are unsuccessful, and after a "failed" thoracoplasty, when the disease is still unilateral, the choice lies between revision, which is rarely successful, cavernostomy and resection. In the other groups mentioned thoracoplasty is unlikely to help and with Overholt I feel that resection should be preferred for these types of disease if the other lung does not contraindicate it.

Streptomycin.

Streptomycin has received much publicity recently, and it does seem that it will prove of real value in the treatment of tuberculosis. In early cases, in which the disease is exudative and no extensive destruction of lung tissue has occurred, streptomycin may cure the disease. When a localized but advanced destructive lesion is present, streptomycin should prevent extension of the process and control or prevent spill-over to other lobes. Grossly diseased lobes or lungs will still require collapse by thoracoplasty, or resection; but control of spread should make these operations much safer than they are at present. The patient with advanced disease is unlikely to receive any lasting benefit. In tuberculosis of the larynx and tracheo-bronchial tree streptomycin may be of real value, and Dr. Corwin Hinshaw of the Mayo Clinic showed me a few patients in whom results had been dramatic. The dose at present recommended is ten times that of penicillin, and treatment must continue for months; consequently the cost will be high.

RECENT EXPERIENCES IN CANADA AND THE UNITED STATES.[1]

By H. M. JAMES,
Clinical Tuberculosis Officer, Melbourne.

IT is my privilege tonight to tell you something of the administrative and medical side of the tour recently taken by Dr. C. J. O. Brown and myself through Canada and parts of the United States of America in search of the latest developments in tuberculosis. Such a trip became necessary because it was thought that in Australia, in spite of its climate and favourable economic conditions, we were not producing satisfactory results in lessening the toll taken by tuberculosis. For some time Australia and New Zealand between them held pride of place in showing the lowest death rates in the world from this disease; but of late years we have been falling back and are now behind our sister dominion of Canada in this respect. Our climate is better than Canada's, and we should be producing better mortality figures, but we are not. It was proposed to institute certain alterations and additions to our own plan for handling tuberculosis in Victoria, and, on the advice of the Consultative Council for Tuberculosis, the two of us were sent abroad to gain at first hand as much useful information as possible. We were in America and Canada for approximately five months, and during that time investigated anti-tuberculosis measures in sixteen States, went through 43 sanatoria, and inspected in addition a number of general hospitals, tuberculosis and other clinics, rehabilitation centres and public health organizations.

Apart from improving the general standard of living of the people, any plan for the control of tuberculosis must stand or fall on three factors: early diagnosis, early and efficient treatment and the removal of sources of infection from amongst the general populace. If we can satisfy these conditions, we have in Australia the means at hand to make tuberculosis a comparatively rare disease within a limited number of years. It is not expected that tuberculosis will be eliminated, but it is fully anticipated that its incidence will become negligible.

Let us consider the way in which these problems are being attacked in Canada and in the United States. Mass X-ray examination is, of course, the means by which early diagnosis may be accomplished, and in Canada especially this has been developed tremendously. In Saskatchewan, under the direction of Dr. R. G. Ferguson, 75% of the total population have been radiologically examined in the last four years, and it is hoped to examine the whole of the population by the end of 1946. Similar work to nearly the same extent is being done under the direction of Dr. G. C. Brink in Ontario, Dr. E. L. Ross in Manitoba, and Dr. W. Hatfield in British Columbia.

All types of plant are in use: the fixed unit such as we have in several centres in Melbourne and the provincial cities; the transportable unit which is conveyed by motor truck or lorry and can be set up in any hall or factory; the caravan type, which simply drives up to its appointed position, plugs into the nearest electric point and starts work; and the small portable fifteen milliampere unit, which may be almost carried by the doctor himself on his visits to outlying districts and small clinics. Work with the fifteen milliampere unit was seen in Connecticut with Dr. Paul Phelps, and the quality of the X-ray films was remarkable. All these units have a specific place in the plan for mass X-ray surveys, and are being used extensively.

There are certain new technical developments in mass radiography, and probably the most important of these is the Morgan timer invented by Dr. Russell Morgan of the United States Public Health Service. By the use of a photo-electric cell exposure time is automatically adjusted, and all need for measuring and calculating is eliminated. The patient is simply put into position and the button is pressed. Results are excellent and uniform, and much valuable time is saved. The Morgan timer will probably

[1] Read at a meeting of the Victorian Branch of the British Medical Association on April 3, 1946.

XUM

be standard equipment on all mass X-ray units. Seventy-millimetre roll film will probably supersede all other sizes of film for survey work. It is much more economical than the individual five by four inch film used everywhere in the United States, and because of its size it has considerable advantage in clarity and detail over the 35 millimetre film still used in part of Canada and here in Australia. Seventy-millimetre film is viewed direct without projection, and is supplied without perforations; in this way it provides greater space for the actual X-ray picture. It is of interest that in New York State, Massachusetts and Michigan X-ray surveys are conducted without the subjects being undressed. Certain precautions as to braces, fountain-pens, ornaments *et cetera* are taken. Results, as seen so far, appear satisfactory, and certainly much time is saved.

It is in the actual method of conducting an X-ray survey that we notice the difference from our own procedure. It has not proved satisfactory to place an X-ray unit in a centre and then by publicity tempt the people to come in for free X-ray examination. They must be sought after and brought in. In Ontario, for instance, Dr. S. Hollings, who is full-time director of mass X-ray surveys, concentrates on a selected district, village, municipality or suburb, and calls there a meeting of representatives of all local bodies interested in public welfare. He explains to the meeting the object of mass X-ray surveys, and then the meeting itself decides whether it wants a survey or not. If it does, the organization immediately comes into action. The whole scheme is given publicity through the Press, the moving pictures, advertisements in shops, churches, schools and so on. A corps of voluntary workers is enlisted. Every family in that particular district is canvassed and given an appointment at a specified time and place for an X-ray examination. The working-up time or period of organization takes about three weeks, on the principle of striking whilst the iron is hot. Then on the set day the X-ray unit is set up and people arrive with scheduled appointments, and this continues until the populace of the whole area has been surveyed. By means such as this it has been possible to examine as many as 97% of the population of a selected area. An attendance of 60% is looked on as a failure. Dr. Hollings is now organizing an X-ray survey of the city of Toronto on similar lines. Mass X-ray surveys in the United States and Canada are financed by the National Tuberculosis Association from the sale of Christmas seals.

Follow-up examination is maintained by a central registry, and reports on X-ray films are sent, not only to this, but also to the patient's private doctor, to the local medical officer of health, and in many cases to the person who has been radiologically examined. Both in the United States and in Canada there are employed proportionately about three times the number of visiting nurses that we have. Subjects who have questionable X-ray findings are brought in to the clinics for further investigation. In this way practically none are missed.

Canada has for tuberculosis approximately twice the number of beds available in proportion to the population that we have in Victoria. Infected subjects discovered by mass surveys can usually be accommodated immediately or at the worst within two or three weeks. As we have, Canada has been troubled during the war period by shortages of nursing and domestic staff. During the whole of our tour only one sanatorium able to work to full capacity was seen; nevertheless, waiting lists for admission were either non-existent or else very short.

Legislation exists both in Canada and in the United States whereby a patient with an "open" infectious lesion can be compulsorily admitted to a sanatorium, and can in addition be compelled to stay until such time as he becomes non-infective. This is a most valuable provision, as it takes care of the source of infection amongst the general public. Contacts are kept under close supervision until such time as this is thought to be no longer necessary.

Certain difficulties still need to be surmounted both in the United States and in Canada, and of those the principal difficulty is that of finance. The family breadwinner stricken with tuberculosis is still in a trying and difficult position. In British Columbia Dr. Hatfield is attempting to solve this problem. The Province of British Columbia is now allotting $3,000,000 (£1,000,000 Australian) per year for social welfare. Trained social workers see every person suffering from tuberculosis, and the family budget is examined. No specified allowance is made, but a grant sufficient to maintain the family in reasonable comfort is allotted. This grant is sufficient to cover homes being bought on time payment, insurances and so forth.

It will be seen that there exists in Canada the necessary mechanism for early diagnosis and for early treatment, coupled with means for preventing the person with an "open" and infectious lesion from remaining at large; at the same time, provision is made for the maintenance of the family in reasonable comfort and nutrition. We believe that this is the secret of Canada's low mortality figures for tuberculosis.

Vaccination against tuberculosis has been mentioned recently, and it is perhaps not wise to leave the preventive aspects of anti-tuberculosis work without making some mention of this. Dr. Ferguson, of Saskatchewan, has now been working with *Bacille Calmette-Guérin* for some years, and is satisfied that it is of value. Figures show that the incidence of tuberculosis amongst persons who do not react to the Mantoux test when exposed to infection is four times that of reactors to the test under similar conditions. Vaccination with *Bacille Calmette-Guérin* reduces the incidence of tuberculosis in the non-reactors by 75%, and in this way brings them on to the same plane as the reactors. *Bacille Calmette-Guérin* vaccination, therefore, must not be looked on as a general vaccination against tuberculosis, but as a means of protecting the uninfected to a certain extent. It is suggested that its main use is for non-reacting nurses and attendants in public hospitals and sanatoria. It must not be forgotten, however, that the use of *Bacille Calmette-Guérin* may be applicable to young babies in tuberculosis households, provided that it is given before the child becomes infected. Dr. Ferguson's work with young babies in the Indian reservations tends to support this idea. The main difficulty with *Bacille Calmette-Guérin* at present is that it is unstable and should be used within five days or at the latest ten. It is made in Montreal, and it would be difficult to arrange supplies even with air transport.

Some General Observations.

Sanatoria of all sizes were seen, from those of 100 beds or less up to those of a capacity of 2,000 beds. We were not impressed by the very large institutions. There is an air of impersonality about them, and it was felt that the patient tended to lose individuality. Many of the small sanatoria, on the other hand, had a delightful atmosphere, where it was felt that each patient could be given close personal attention, and there the relationship between patient and physician was conducive to recovery. However, small sanatoria are not economical, and they also lack the advantage of having sufficient medical staff for adequate consultation in difficult cases. The consensus of opinion in both the United States and Canada was that a sanatorium of from 350 to 400 beds provided the optimum size from every consideration.

On driving up to a modern American sanatorium, one is immediately impressed by the beautiful surroundings. There is invariably parkland with many trees and beautiful gardens. Set in these pleasant surroundings one finds as a rule rather magnificent buildings—always an impressive administration block, and usually hospital buildings of a size and permanency to which we are not accustomed here. As one walks through the sanatorium, the impression is deepened that here the question of expense has not been considered. Wards, in the old sense of rooms holding 20 or more patients, are rarely seen, and patients are housed in single rooms, or in wards of two, four or at the outside six beds. Rooms are well fitted, and in most cases have built-in lockers or dressing rooms. Toilet and bathroom arrangements approximate those seen in our own first-class hotels. American sanatoria are costly in building and in running. The average daily cost per patient is in the neighbourhood of $4.50, or 27s. Treatment is rarely free, patients paying as much as they can afford. One fault can perhaps be found. There are no verandas, and patients may be confined to one room or small ward for periods of twelve

months or so. It is fairly freely admitted that they often become bored and restless after months of confinement. The impression was gained that the average period of bed rest in an American sanatorium is longer than ours. Modern sanatorium treatment with its emphasis on surgery rather than on the country club type of life with fresh air and exercise is perhaps responsible for the type of building seen. Whether it is all good is difficult to determine.

In general the medical staff is well catered for. On each floor you will find a well-appointed doctor's office complete with X-ray viewing boxes, "Dictaphone" and adjacent fluoroscope. The artificial pneumothorax room is fitted as a small surgery, and refills are treated as surgical operations and given under completely sterile conditions. Every sanatorium, no matter how small, has a modern medical library with not only the most recent books, but also all the current medical journals. In most sanatoria the medical officer works under ideal conditions, with every facility for keeping himself up to date and also for research if he is so inclined.

A commendable feature of sanatorium life is the weekly or bi-weekly conference, at which all members of the staff are present, including surgeon, pathologist and radiologist. Every patient under treatment is reviewed and discussed, not only from the X-ray film, but often with the actual patient present. The suggested treatment is put to the vote of the meeting and each vote is recorded, so that in, say, six months' time it may be possible to apportion the praise or blame indicated. This rather tends to discourage hasty decisions. Occasionally one dominant personality will overwhelm a conference; but on the whole the system works well, and the junior's opinion is given as much consideration as the superintendent's.

This paper is not intended to deal with surgical treatment, but perhaps one or two remarks may be permitted. Collapse therapy is now universally accepted; but it was disappointing to find that there was lack of unanimity as to the best forms. Artificial pneumothorax with early division of adhesions was universal, but, otherwise, there was great variation. Pneumoperitoneum might be used in one sanatorium, but not in the next, and the same applies to such procedures as Monaldi's suction drainage, extrapleural pneumothorax, apicolysis and so on. It appeared that the medical profession as a whole was searching for some kind of formula which would indicate from the very outset just what type of collapse therapy was suitable for each individual patient, and that this had not yet been found. It was noteworthy that many of the patients presented at conferences were those who had been under treatment for years and had had every kind of collapse therapy without improvement. It was thought that in no case should major surgical procedures be performed without consultation with the best authorities available.

We were privileged to spend some time at Rochester with Dr. Corwin Hinshaw and Dr. W. Feldman studying streptomycin. Neither of these young men is at present prepared to make a definite statement as to the value of streptomycin, but they both conveyed an air of expectancy and hope. After numerous trials streptomycin sulphate has been selected as the most suitable preparation, and Hinshaw and Feldman are giving it one of the most severe tests ever conceived. They have been treating patients with miliary tuberculosis from the mental hospitals. Some of these were alive when we were there, but some had died. In those who died, post-mortem evidence, both macroscopic and microscopic, showed evidence of healing. As is not unusual in chemotherapy, it is difficult to establish the same concentration of the drug in the cerebro-spinal fluid as in the blood, and the patients who died succumbed to meningitis. Success has been achieved in cases of tuberculous bacilluria; in a number in which the urine had consistently contained tubercle bacilli for many months, it was rendered free from bacilli. The patients with pulmonary tuberculosis under treatment were showing clinical and radiological signs of improvement. Some tuberculous sinuses had been cleared, one patient with tuberculous laryngitis had shown remarkable improvement, and one or two patients with tuberculous synovitis were responding well.

Supplies of streptomycin are as yet limited, and the doctors are finding it difficult to obtain enough even for their experimental work, so that the series of patients under treatment is as yet too small to justify any announcement. The premature publicity given to "Diazone" both in America and in Australia was most unfortunate and caused a great deal of disappointment and heartburning. Hinshaw and Feldman are determined that there shall be no similar happening with streptomycin. Some of the larger chemical firms, in anticipation of results, are already establishing extensive factories for streptomycin, as was done in the case of penicillin, and there should be no difficulty over supply in a few months' time; but it is thought that it will probably be from six to twelve months yet before any official pronouncement can be made. Streptomycin is given intramuscularly in doses of 1,000,000 units per day, divided into six injections, and the course of treatment is about two months. There have been no toxic manifestations with the preparation now in use. It may be of interest to note that bronchiectasis was being treated at the Mayo Clinic with nebulized penicillin. The dosage was 100,000 units suspended in three millilitres of water and inhaled every hour. Relief of symptoms had been noted. Investigation is now proceeding into similar lines of treatment for endobronchial tuberculosis.

It is probably in research that one notices the greatest difference overseas. Every sanatorium, even a one hundred-bed institution, has a full-time pathologist and bacteriologist, and in addition there are technical assistants. Every type of investigation and analysis is carried out on the spot, and much good research is being done.

Both in Canada and at the Mayo Clinic a number of obscure lung conditions were seen. Dr. H. C. Sweeney of Chicago, whose opinion is much respected in the United States, thinks that many anomalous forms of pulmonary fibrosis are associated with new war processes. They are not at all well understood, and may be associated with volatile irritants; but some of the newer war metals are suspect and some doubt has been thrown on aluminium. Dr. Leroy Gardiner of Saranac thinks that we should be careful of the proposed aluminium therapy in miners' phthisis. Physicians are puzzled by these cases, and no satisfactory opinion had been offered at the time of our visit.

Considerable work on pulmonary function is being done. Dr. G. G. Ornstein of New York is using bronchospirometry extensively to investigate pulmonary function before major chest operations. Dr. Wright, using similar methods at Saranac after much experiment, suggests that the reexpanded artificial pneumothorax lung has lost considerable function, and that oxygen exchange is much diminished. Dr. W. L. Brosius of Detroit, by an ingenious injection of the pulmonary blood vessels, has done further work in demonstrating an obliterating endarteritis in pulmonary tuberculosis. Dr. Brosius considers that the affected portion of the lung becomes almost avascular, and if his contention is correct it further complicates our conception of chemotherapy.

While we were with Dr. Brosius, some patients suffering from histoplasmosis were seen. This condition is of fairly recent notation, and Dr. Brosius thinks that many of the cases we have diagnosed as of healed miliary tuberculosis may possibly be cases of histoplasmosis. Some work was also done with Dr. C. Richard Smith at Los Angeles on coccidiomycosis. This is another of the fungous diseases simulating pulmonary tuberculosis, and is not to be confused with moniliasis. Authorities overseas agree with us that true moniliasis is an extremely rare condition. We could have spent the whole time of the trip with interest and education in the pathological laboratories of the sanatoria.

Some time was also spent at various rehabilitation centres. There was probably more variation in rehabilitation than in any other direction. Some sanatoria had none at all, whilst others were excellent. Much more emphasis is placed on adult education in sanatoria than on the various types of handcraft so well known in occupational therapy. It is beginning to be felt that the handcrafts, while most useful in providing diversion and interest for patients in sanatoria, are mostly dead-end

interests, and do not provide a means of livelihood after discharge from the sanatorium. The principle is now accepted that rehabilitation begins for the patient on the day on which he enters sanatorium. He is studied during the whole of his stay as to his capabilities, and his education is directed accordingly. Such education may be clerical, commercial or technical, or it may even be cultural. All subjects are taught from high school to university standard, and the aim is that the subjects taught shall be such that they will be useful to the patient in making a living, with regard to both his own potentialities and the demands of the labour market. Excellent education programmes are in operation at the Hamilton Sanatorium under Dr. Howard Holbrook, and at the London Sanatorium under Dr. D. Crombie. Hamilton employs eight full-time teachers, and the general proportion of teacher to patient seems to be one to a hundred.

Occupational and diversional therapy follows much on lines already well developed in Australia. Again emphasis is placed on the production of articles of professional and artistic standard, articles that will find a ready market because of their intrinsic value and taste rather than a sale out of sympathy for a poor disabled person. However, one does not need to go overseas to see the type of work referred to. If any of you can attend either of the half-yearly meetings at Gresswell Sanatorium, you will see most excellent examples of this type of work such as were not surpassed anywhere in Canada or in the United States. Splendid workshops were seen at Trudeau Sanatorium, Lockport, and at Winfield, Illinois.

Sheltered workshops were seen in New York, at Saranac Lake and at Vancouver, British Columbia. Excellent rehabilitation programmes were seen with Mr. J. W. Hekeley at Harford, Connecticut, with Mr. T. A. J. Cunnings in Manitoba, and with Dr. Arthur Aitken of Lockport Sanatorium, Niagara County. Time, unfortunately, does not permit of their description in this paper.

Acknowledgements.

Everywhere we went we received the greatest cooperation and help, and it is almost impossible to express our thanks adequately; but we would especially like to record our appreciation of the help given us by Dr. Clair Brink in Ontario and Dr. George Ferguson in Saskatchewan. Both these directors gave up practically their whole time to us during our stay in their respective provinces and could not possibly have done any more than they did. As happy as we were to return to Australia, we felt that we had left behind us both in Canada and in the United States a number of valuable and valued friends.

PSYCHOTIC CASUALTIES IN NEW GUINEA, WITH SPECIAL REFERENCE TO THE USE OF CONVULSIVE THERAPY IN FORWARD AREAS.

By DAVID ROSS,

Captain, Australian Army Medical Corps.

IT became evident early in June, 1944, at an Australian general hospital in New Guinea, that the numbers of psychiatric casualties requiring admission to hospital were increasing. The figure rose sharply until it approximated 7% of all admissions. The hospital was the principal base for all medical units on the island, and all patients who were to be evacuated to the mainland passed through our hands. For this reason it was impossible to assess whether the increase was apparent or real; but the problems associated with accommodation and transport of personnel were very real. To add to the difficulties, facilities for evacuation to Australia became less readily available. No conditions caused more concern than the psychoses, and it may prove useful to indicate the way in which the problem was faced.

Prior to June, very few psychotic patients had been admitted to the hospital; they had been accommodated in a small annexe to a general medical ward and evacuated to the mainland at the earliest opportunity. As transport difficulties increased it became necessary to set aside a ward for their accommodation. This ward conformed to the usual pattern of "hospital ward extending" and contained sixty beds. It was realized at once that this was quite unsuitable, and steps were taken to build more suitable accommodation; but delay was inevitable and the construction of this ward was not completed until the end of August.

During the period from June to August, 51 psychotic patients were admitted to the hospital; under the prevailing conditions we were unable to transfer them to the mainland. No treatment other than sedation and general nursing was attempted or practicable. It was an anxious and trying experience, not only for the patients, but for the staff. The majority of the patients were violent and combative and for the most part had to be restrained on their beds and given large doses of sedatives. Despite these measures, injuries of a minor nature were a frequent occurrence amongst members of the staff and patients. It was a most unfortunate state of affairs, but invaluable, in that we were afforded an opportunity to observe the course of the disease when not interrupted by convulsive therapy.

At first we were hesitant to classify many of these as cases of schizophrenia, although in the early stages of the illnesses a schizophrenic reaction state was manifest. It was preferred to regard them as acute confusional states, possibly toxic in origin, and we were hopeful that the patients would settle down quickly. They did not. Most of the patients deteriorated and went from bad to worse, and as time went on the conclusion was reached that the condition was true schizophrenia. Some of the patients were in hospital for fifty days, the average period of observation being approximately one month. During that time remissions were rare and for the most part not maintained.

Of the 51 patients under review, 20 were admitted to hospital under restraint; yet after their stay in hospital 38 required sedation and restraint prior to evacuation to the mainland.

Towards the end of August a transport aeroplane was made available, and we dispatched 18 of these patients to Australia. Major Donald Brandt of this hospital had the unenviable task of escorting them. It was a nerve-racking and hazardous experience. All the patients were restrained and received sedatives prior to leaving the ward. Unfortunately, as often happened, they were delayed for some hours at the airstrip, and by the time they had left the majority were noisy, violent and resistive. It was impossible to give sedatives intravenously, and the administration of paraldehyde was difficult. Morphine and hyoscine were used sparingly, because occasionally alarming respiratory distress followed their use at high altitudes. Urine and fæces in the stretchers added to the general discomfort. On their arrival on the mainland, the physical condition of a number of the patients caused the medical officer no little concern.

Advice was received that air evacuation was to be the rule in the future. Steps had to be taken so that, as far as possible, a repetition of such an experience should be prevented.

Towards the end of August our new ward was ready to admit patients. It was solidly constructed; the roof was of iron insulated from the sun's rays with sac-sac, the walls were of wide wire mesh strongly reinforced. Strips of "Sisalkraft" effectively screened the ward from public gaze. One half of the ward consisted of ten individual locked rooms from which escape was impossible—these cells were cool and comfortable. The remainder was made up of a large enclosed dormitory accommodating 30 beds. A large room opened off the dormitory for treatment purposes. The usual offices, kitchen and sisters' room were incorporated. An enclosed exercise yard and workshop were provided.

The commanding officer made available one medical officer, three sisters and twelve nursing orderlies to staff the ward. This was in excess of our war establishment and no doubt caused some inconvenience in other wards; but these were the minimum requirements. None of the nurses and only three of the orderlies had been trained in mental nursing, but they readily adapted themselves to the task

and worked splendidly. Lack of previous experience was no great handicap; but it was essential to preserve continuity of service by as few changes in the staff as possible. Later another medical officer was made available and the work was shared.

Working conditions were now pleasant and easy, and the patients were comfortable. The cells effectively prevented escape, and only on rare occasions was it found necessary to restrain a patient.

We were still faced with the major problem of air evacuation. We realized that transport of patients by air was fraught with considerable danger and difficulty. Many of the patients arriving at this hospital from forward units were distressed on their admission, despite the relatively short trip by air. Much of this could be accounted for by long unavoidable delay at airstrips. Patients who had left the medical unit under sedation were often violent and maniacal in the air. Methods of restraint were often unsatisfactory and on occasions dangerous. Nerve palsies involving the brachial plexus and peroneal nerves were not uncommon, and many of the patients were pyrexial and dehydrated on their admission to hospital. Faced as we were with much longer air travel to the mainland, the prospect was not encouraging.

As a result of bitter experience certain facts emerged. In preparation for air travel, the physical condition of the patient is more important than his mental status. Resistive patients can be restrained; but those in poor physical condition often gave cause for grave alarm whilst in the air and on arrival at their destination. In a personal communication Squadron-Leader Kiel was emphatic on this point. It would appear that there is an appreciable lowering of the glucose reserve during the manic phase of a psychotic episode; during long journeys this may reach a dangerously low level. Patients should be given large doses of glucose by mouth prior to evacuation by air. Should this prove impossible, it would be well to administer intravenously glucose and saline solution in sufficiently large quantities to guard against hypoglycæmia and dehydration. This precaution is of much greater importance than mere sedation.

Intravenous administration of "Sodium Amytal" is effective in quietening the more resistive patients. Paraldehyde is safe in moderate dosage; but morphine and hyoscine in sufficiently large doses to ensure sedation may precipitate respiratory distress at high altitudes.

As far as practicable the patients should be grounded and rested at intervals during a long journey. Even patients who leave in good condition show signs of restlessness and irritability if the journey is too long. On one occasion, more as a test than anything else, the Royal Australian Air Force flew these patients to Melbourne without adequate rest; they have not cared to repeat the experiment.

American type litters proved entirely satisfactory for recumbent patients. Restraint should be at wrists and ankles only. Towelling knotted to the sides of the litter with the knots encircled by strapping to ensure that no displacement occurs is usually all that is required. The clothing must be loose and airy; canvas straight-jackets are unnecessary and even dangerous—they were found to be a potent factor in the production of pyrexia and dehydration. Blankets should accompany the patient for use if necessary.

With these simple precautions much of the danger of air travel can be eliminated. All psychotic patients should travel as recumbent patients; this ensures constant watchfulness on the part of the attendants. One psychotic patient who travelled to this hospital under a different category committed suicide by jumping from the ambulance as it left the airstrip.

During the period from September to May, it was decided to institute convulsive therapy in an attempt to reduce the numbers of patients requiring restraint on evacuation to the mainland. The following tabulation indicates the extent to which this was carried out and the results obtained:

Number of psychotic patients admitted to the hospital	236
Patients admitted under restraint or confined to cells on their admission	124
Patients treated by shock therapy	142
Number of convulsive seizures induced	674
Patients requiring restraint on evacuation to the mainland	16

From the beginning the results obtained were satisfactory. The intravenous injection of "Cardiazol" was employed to induce the seizures. Treatment was given every second day for three injections, and then twice a week. No difficulty was encountered in securing the cooperation of the staff, who quickly mastered the routine. On an average we were able to administer the injections at the rate of ten per hour.

The accepted technique was employed, although slightly larger doses than usual were found necessary. After one or two convulsive seizures a smaller dose usually sufficed. Few of the patients displayed any real apprehension, nor did we experience any difficulty in persuading them to continue treatment. The average stay in hospital of these patients was eighteen days.

As a rule definite, and more often than not, dramatic improvement was noticed after three seizures. Patients became tractable and much more cooperative and in most instances were granted comparative freedom, in that they were moved from the locked rooms and restricted exercise compound to the adjacent ward and its surrounding gardens. Arrangements were then made for their evacuation to the mainland; but we continued inducing seizures twice a week until transport became available. Occupational therapy was not a feature of the treatment, but was readily available to those who expressed a desire to employ themselves in such a fashion.

Complications of shock therapy were not frequent and were of minor importance compared with the advantages which ensued. Three patients complained of persistent localized pain in the back. Skiagrams revealed minor compression fractures in the fifth and sixth thoracic vertebræ. No treatment was undertaken, and the pain soon disappeared. Ten patients suffered dislocation of the jaw on one or more occasions; the dislocations were easily reduced before consciousness was regained. Two patients sustained dislocations at the shoulder joint, which were later reduced under general anæsthesia. An interesting if somewhat alarming complication was provided by one patient, who had a brisk and copious hæmatemesis within thirty minutes of the convulsive seizure. After administration of morphine his condition improved and he gave no further trouble.

The general care and nursing of the patients proceeded satisfactorily. Diets were maintained at a high nutritional level and the intake of carbohydrates was encouraged. Vitamins *B* and *C* were added.

Except for restless patients, very little sedation was found necessary. Barbiturates tend to inhibit convulsions and for this reason were not administered. One of our minor troubles resulted from the massive exhibition of "Nembutal" prior to the patient's admission to hospital. We had to allow at least forty-eight hours to elapse in these cases before inducing seizures. Paraldehyde in doses of approximately four drachms was the drug of choice. Morphine and hyoscine were disappointing and rarely used.

Patients arriving in poor physical condition presented our greatest problem; usually they were grossly dehydrated and suffered persistent pyrexia. Routine examination of the blood for malaria parasites almost always gave negative results. As a rule no organic cause for the fever could be detected, and we attributed it to excessive psychomotor activity in this hot and humid climate.

The intravenous administration of glucose and saline solution was freely employed and found to be of great benefit. Tube feeding was not frequently necessary, but in some cases it was unavoidable. At first we devoted most of our attention to relieveing the physical condition and were accustomed to await the decline in temperature before commencing shock therapy. This proved an error of judgement; even a week's delay in instituting convulsive therapy was followed by disappointing results. Later we commenced inducing seizures as soon as dehydration was relieved and found no cause for regret.

"Atebrin", in doses of 0·1 milligramme, was given daily as a routine measure and never omitted. In this respect

it is significant that, although in many cases it was impossible to carry out any other anti-malarial precautions, and a number of the less cooperative patients were uncovered during the night, not one case of malaria developed during the period under review.

Two attempts at suicide were thwarted before any real harm resulted. Nine patients escaped from the ward for a longer or shorter period, of whom eight were returned to the fold. The remaining escapee had a psychopathic personality. Incredible as it may appear, this youth "hitch-hiked" his way by air from Sydney to Hollandia, where he was detained by the provost corps and referred to us. He announced his intention to join our allies in the Philippines, and one night he left us. I have no reason to suppose that he failed to reach his destination.

In two cases manic hyperpyrexia developed; in both the rectal temperature was raised to 106·5° F. within the space of two hours. Energetic measures to reduce the temperature with ice packs were successful, and both patients recovered. No deaths occurred during the series.

The results obtained were most encouraging and would appear fully to justify the establishment of the ward. It is interesting to note that prior to the institution of convulsive therapy, 38 out of a total of 51 patients had to be restrained prior to their evacuation to the mainland. In the second period only 16 psychotics out of a total of 236 were sent to the mainland under restraint.

Those psychotics who suffered no problem in evacuation were dispatched almost at once to the mainland. If it appeared that some delay was inevitable, convulsive therapy was commenced. Types of cases dealt with are analysed in Table I.

TABLE I.

Analysis of Cases According to Types of Mental Abnormality.

Type of Abnormality.	Number of Cases.
Schizophrenia	217
Manic-depressive psychosis	59
Other psychoses	11
Psychopathic personality	46
Total	333

Schizophrenia, as we saw it, had the same slow ingravescent onset as in civil life. Many of the patients had been subjected to disciplinary measures before the underlying personality changes were appreciated. To a greater or less extent they manifested dilapidated thinking, emotional incongruity and a gradual withdrawal from reality. Excitement and agitation with occasional outbursts of violence were a prominent feature of the illness. Anxiety or depression occasionally lent an hysterical colouring and tended to confuse the diagnosis; but after a few days the patient would declare himself and by his behaviour would establish the diagnosis of schizophrenia. In untreated patients the disintegration of the personality appeared to progress more rapidly than is usually seen in schizophrenia in civil life.

The manic-depressive psychoses conformed to the usual pattern. Hypomania was encountered frequently and responded well to convulsive therapy.

One example of cerebro-macular degeneration was observed. This patient had suffered progressive mental degeneration, and Major Flynn was able to demonstrate the changes in the *fundi oculorum*.

One patient developed a confusional psychosis during the course of an attack of infective hepatitis. His abnormal mental state persisted for some three weeks and cleared up as his jaundice disappeared. It was suggested that his physical illness had merely precipitated a schizophrenic episode. However, we were unable to detect any evidence of a preexisting schizoid personality.

Throughout the whole period under review we carefully considered the possibility of "Atebrin" intoxication as the cause of or as a factor in the production of psychotic illnesses. There had been reports of the development of an acute psychotic episode characterized by delirium, restlessness, disorientation and even visual and auditory hallucinations following the administration of massive doses of "Atebrin" in the treatment of malaria. Although heavy "Atebrin" dosage was employed in a number of cases in this hospital, we observed no undue toxic manifestations. Suspicions were aroused when acutely psychotic patients were admitted with a history of having taken large quantities of "Atebrin" in the previous few days. Their skin was bright yellow, and they had a high blood "Atebrin" level. However, in every case we were able to show that their illness had commenced prior to the high consumption of "Atebrin", which was merely another manifestation of abnormal behaviour which had been in existence for some time previously. We did, however, observe seven cases which we regarded as of confusional states due to "Atebrin" intoxication. These did not conform to any of the recognized psychoses, but the same pattern of abnormal behaviour was shown in all cases. At all times the patients appeared to have insight into their condition and were invariably worried by their strange behaviour. The majority sought advice of their own volition.

An infantry officer complained that for a period of some days he had been doing "silly things". He described how he would affix his signature to the top of the page instead of the bottom and later realize his error. He found himself in bed in his pyjamas, but still with his boots on. On one embarrassing occasion he endeavoured to take soup with his fork.

Similar histories were obtained from the other patients. The illness always developed within three weeks of the commencing suppressive "Atebrin" therapy, and in all cases it was noted that "Atebrin" treatment was not commenced until the subjects had left the mainland, and that they had been taking not less than 0·2 gramme per day in order rapidly to build up their blood "Atebrin" level to an adequate suppressive height. In each case cessation of "Atebrin" therapy was followed by immediate remission of symptoms, which did not recur when "Atebrin" treatment was resumed with a dose of 0·1 gramme per day. It was noted, too, that when a soldier had been taking 0·1 gramme per day for some weeks or months, no untoward effects from a psychiatric point of view occurred if the dose was raised to 0·2 gramme per day for a short period.

It is more than likely that our seven cases of "Atebrin" intoxication did not represent the full incidence of the condition. No doubt a number of patients endeavoured to hide their abnormal behaviour as far as possible and did not report to the medical officer. When they reduced the dosage of 0·1 gramme per day their symptoms would disappear. Many, perhaps, would be ready to blame the heat and tropical surroundings for their queer behaviour.

As a result of our observation over this period of twelve months, when many thousands of men and women were taking "Atebrin", we concluded that this drug in the optimum suppressive dose of 0·1 gramme per day was not a factor in the production of any psychotic illness, but that a small minority of patients manifested an idiosyncrasy to "Atebrin" even in moderately excessive dosage, particularly when it was first administered, and as a result developed a transient confusional state which disappeared when the minimum adequate dose was taken.

Table II indicates that the incidence of the psychoses was probably related to the number of troops engaged. It is suggestive that all ranks were equally affected. As a result of our experience we gained certain impressions, which of course cannot be accepted as more than impressions. It was noticed that the rate of admissions rose abruptly after any influx of troops into the area. These had not been subject to battle stress. It would appear that the weaker vessels are broken easily in their new environment, and that only those with more stable personalities remain to carry on. In almost every case it was possible to obtain a family history of mental instability. Most of the patients had a poor record of civil adaptation.

Towards the end of the period under review the rate of admissions declined, despite the fact that the majority of the troops were now engaged in active combat. It appears

to us that battle stress is not a significant factor in the precipitation of a psychotic illness. It has been held that army life has served in many cases to save men from breakdown, in so far as it provides security and freedom from responsibility—or in other words, it stands *in loco parentis*. Possibly this is true of service on the mainland, with all its amenities and reasonable access to the family; but when the men depart overseas and there appears to be finality in the separation, those with schizoid personalities break down long before they engage in actual fighting.

TABLE IIA.

Analysis of Cases of Psychosis According to the Arm of the Services.

Service.	Number of Subjects.
Royal Australian Navy	9
Australian Military Forces	292
Royal Australian Air Force	30
Australian Army Medical Women's Service	2
Total	333

TABLE IIB.

Analysis of Army Psychotic Casualties According to Rank.

Rank.	Number of Subjects.
Officer	12
Non-commissioned officer	45
Other ranks	235
Total	292

Apart altogether from its value in preparing agitated psychotic patients for evacuation, we feel that the early institution of convulsive therapy is an important factor in the ultimate prognosis. In most cases the longer the manic phase of a psychotic illness persists, the worse is the end result. There can be little doubt as to the efficacy of convulsive therapy in shortening the period of excitement and agitation in schizophrenia and its value in paving the way for early institution of insulin therapy. We believe, too, that in a number of cases it is possible even to abort the development of an actual schizophrenic episode. The queer, abnormal behaviour of a soldier with impending schizophrenia soon becames evident to the rest of his unit, and he is promptly referred to hospital. When convulsive therapy was used in these cases it did seem to produce a remission. It may well be that the outlook for the psychotic soldier is better than that of his civilian brother, for no other reason than that treatment is instituted at an earlier stage of the disease.

It has been suggested that exogenous factors play a major part in the production of psychotic illnesses in soldiers, and that remissions may be anticipated by their mere release from their environment. Nothing in our experience has tended to support this view. We could not satisfy ourselves that any real improvement took place after admission to hospital, even though it was impressed upon the patient that he was returning to Australia forthwith. It was only when convulsive therapy was introduced that we succeeded in relieving the condition.

It should be pointed out that all patients passed out of our hands long before their treatment was concluded. As yet it has not been possible to learn their ultimate fate, and it may well be that no lasting benefit has accrued. Be that as it may, our problem was that of accommodation and preparation for air travel. We believe that something has been achieved, as indicated in Table III.

TABLE III.

Comparison of the Necessity for Restraint and Average Stay in Hospital Prior to Transfer Before and After the Introduction of Convulsive Therapy.

Description of Patients.	No Convulsive Therapy. (June to August, 1944.) 51 Subjects.	Convulsive Therapy. (September, 1944, to May, 1945.) 236 Subjects.
Admitted to hospital under restraint or confined to cells on admission	20	124
Discharged from hospital under restraint	38	16
Average stay in this hospital (days)	30	18

Summary.

1. The problems of accommodation and treatment of psychotic casualties at an Australian general hospital in a forward area are presented.

2. The dangers attendant upon air transport and the methods successfully adopted to combat them are discussed.

3. A description and classification of the types of psychoses encounted in service personnel in New Guinea during the period from June, 1944, to May, 1945, inclusive, reveal that the same forms of illness occurred in service personnel as are met with in civil life. An interesting feature was the extreme degree of excitement and agitation manifested immediately prior to admission to hospital.

4. The role of "Atebrin" in the production of psychotic illnesses is discussed, and the type of illness attributed to such intoxication is described.

5. Certain impressions resulting from the observation of 333 cases have been given. A comparison is made of the results obtained before and after the introduction of convulsive therapy, and the value of this form of treatment in the management of psychotic patients who are violent and resistive and in the overcoming of the necessity for physical restraint is shown.

Acknowledgements.

The Director-General of Medical Services, Major-General S. R. Burston, has given permission for the publication of this paper.

I am indebted to Colonel Ian Wood, Colonel Geoffrey Penington and Lieutenant-Colonel A. J. M. Sinclair for their help and advice in the preparation of this paper.

Lieutenant-Colonel Bruce Hall originally directed my attention to the possibility of "Atebrin" in suppressive dosage acting as a factor in the production of psychotic illnesses.

CONGENITAL FIBROCYSTIC DISEASE OF THE PANCREAS.[1]

By P. E. BLAUBAUM, M.B., B.S.,

Resident Medical Officer, Children's Hospital, Melbourne.

CONGENITAL fibrocystic disease of the pancreas has only recently become a recognized clinical entity, although the condition of chronic intestinal indigestion has been known and recorded since early time, being first described by Caelius Arelianus and Aratæcus. It was not until the year 1888 that the various syndromes constituting this group of diseases began to be differentiated. In that year Gee described cœliac disease. In the following year, 1889, Gibbons differentiated between cœliac disease and sprue. The next development was in 1902, when Bramwell recorded a case of "infantilism" due to pancreatic insufficiency. In 1919 Passini observed an association between pancreatic and respiratory disease; but it was not until 1938 that the clinical features of the congenital fibrocystic pancreas were first described in America by Anderson. The purpose of this paper is to draw attention to a disease which has not previously been recognized clinically at the Children's

[1] Read at a meeting of the Melbourne Paediatric Society on July 11, 1945.

Hospital, Melbourne, and to illustrate it by means of the clinical histories of two children who died of the disease in the hospital; in the first of these the diagnosis was made only at necropsy, and in the second the diagnosis was made *ante mortem*, both clinically and with the help of laboratory findings.

The disease has been unrecognized for so long owing to the fact that the pancreas of a child dying of cœliac disease was rarely examined microscopically, and secondly because of the usual, although unexpected, finding in cases of fibrocystic disease of a large percentage of split fat in the stools associated with a high total fat content, despite the complete absence of fat-splitting enzymes in the pancreatic junction.

Clinical Picture.

The disease is distinguished by congenital and severe atrophic changes in the secretory powers of the pancreas. The age of onset is characteristically in early infancy, always before twelve months, whereas cœliac disease is commonly regarded as commencing after the first twelve months of life.

The onset may be (*a*) pulmonary, (*b*) gastro-intestinal or (c) both together. The pulmonary onset is characterized by chronic cough, often mistaken for whooping cough, and interrupted by recurrent attacks of bronchitis or bronchopneumonia. The gastro-intestinal onset is generally with diarrhœa, and the stools may be of three types characteristic of either carbohydrate or fat dyspepsia or protein indigestion. Thus the stools may vary widely in one case or from one subject to another, this state of affairs following from the almost complete absence of all pancreatic enzymes. The types of stool are as follows: (*a*) large frothy, mushy, foul-smelling stools (carbohydrate dyspepsia); (*b*) large loose, yellow or grey-white fatty stools (fat dyspepsia, the most common type); (*c*) large foul stools with putrefactive odour (protein indigestion); (*d*) mixed types of stool, representing all the forms of indigestion mentioned above. Cœliac symptoms may appear only after the age of eighteen months or two years, although respiratory symptoms may have been present since birth.

Clinical Appearance.

The child is emaciated, often despite a healthy appetite. The abdomen is protuberant and tympanitic, and the extremities are spindle-like. The liver is often enlarged, in contrast to the small liver of cœliac disease. Examination of the chest reveals poor movement, often a hyperresonant percussion note with diminution of the superficial cardiac dulness, and liver dulness. Diminished vesicular murmur in patches with showers of moist and sticky râles are usually heard on auscultation. The urine is rarely found to contain sugar. X-ray examination of the chest reveals a fairly typical picture characterized by the obscuring of the cardiac outline by a "circumcardiac halo" with diffuse mottling throughout the lung. Finally, prolapse of the rectum is a frequent occurrence, due to the combination of coughing, frequent bowel actions and the generalized muscular atonicity in these cases.

The course of the disease is short, death occurring before the age of twelve months, although some subjects live longer and a few reach the age of three or four years.

Pathology.

Characteristic changes are present in the pancreas and lungs.

Pancreas.—Macroscopically, the pancreas appears small, fibrous and atrophic. Intralobular and interlobular connective tissue is greatly increased in every case, and there is great dilatation of the ducts, many of which contain eosinophile hyaline material. Little pancreatic secretory tissue remains, although the islets of Langerhans are usually preserved. Clusters of small round cells are common.

Lungs.—Congenital cystic lungs are not described in the literature, and saccular bronchiectasis is uncommon, although the cylindrical type is frequent. Emphysema and atelectasis are commonly found, and occasionally lung abscesses are present from which the *Staphylococcus aureus* is often cultured. Squamous-cell metaplasia is frequently met with in the tracheo-bronchial tree.

Liver.—The liver is often affected by fatty changes. Rickets and keratomalacia are occasionally found owing to vitamin *A* and *D* deficiency.

Comment.—Fibrocystic disease of the pancreas may be suspected in cases in which the disorder is of atypical cœliac type with a high percentage of fat in the stools, most of which may be split, and when pulmonary symptoms and signs are also present, especially if pulmonary or gastro-intestinal troubles date from early infancy. The final proof lies in duodenal aspiration and direct estimation of the enzyme content of the pancreatic secretion.

Physiology of the Fat-Splitting Enzymes.

Lipase is present in three forms.

1. Gastric lipase functions at pH 4·0 to 5·0 and has no action at pH 2·5 in the adult, although it may function in the higher gastric acidity of the child. On the other hand, in pancreatic steatorrhœa the presence of large amounts of fat in the intestine depresses not only gastric motility, but also the secretion of gastric juice. It is therefore unlikely that gastric lipase compensates for absence of pancreatic lipase.

2. Pancreatic lipase is the second form. The pancreatic secretions contain three enzymes, trypsin, amylase and lipase, acting respectively on protein, starch and fat. The pancreas is under the control of two stimulating influences: (*a*) hormonal, due to the presence of acid gastric contents entering the duodenum and liberating the hormone secretion; (*b*) nervous or vagal. The former causes a flushing out of the secretory cells of the alveoli with fluid, increasing both the quantity of secretion and the enzyme concentration. The latter merely increases the output of enzymes from the cell without increasing the volume of secretion to the same extent.

3. *Succus entericus* contains lipase. Experiments in animals have shown that 50% of fat may be split in the absence of the pancreas or after ligation of its ducts. This may well be the explanation of the frequency of a high percentage of split fat in the stools in this disease.

Duodenal Aspiration.

The diagnosis was established *ante mortem* in one case by means of duodenal intubation, aspiration of the duodenal contents and estimation of the enzyme content of the material obtained.

Method of Aspiration.

The child is starved for four hours prior to the passage of the tube, except for boiled water, which can be given up to one hour before the selected time. The tube is passed at the time a feeding is due—for example, 10 a.m. A Rehfuss tube with a metal tip and several perforations extending five centimetres along the tube is used. The procedure is carried out under fluoroscopic control. The tube is passed until the tip lies at the pylorus, with some slack lying in the stomach. The patient is then returned to bed, placed on his right side, given a drink of water and left undisturbed for two hours. During this time the child is not inconvenienced by the presence of the tube, and may even sleep. At the end of the two hours the position of the tube is reviewed under the fluoroscope. The tip should now be in the second part of the duodenum; in this event the metal tip is seen to point downwards and to be well over to the right of the abdomen. In the lateral view the tip is on a level with the body of the second lumbar vertebra. Sometimes the tube may be passed into the duodenum at one sitting, particularly if the child is lying on his right side for a short time and his abdomen is gently massaged. When the tube is in position, aspiration is commenced. Every five minutes for half an hour a specimen is collected, and the six specimens are placed in sterile test tubes which are kept on ice. At the end of the half hour 10 millilitres of one-tenth normal hydrochloric acid are injected into the tube, and after ten minutes aspiration is recommenced in a similar manner for a further half hour.

Dorothy Anderson and other American workers have used "Secretin" intravenously instead of one-tenth normal hydrochloric acid, in order to stimulate pancreatic secretion; but in this country "Secretin" is not readily available.

Estimation of Tryptic Activity.

The total quantity of duodenal contents obtained before and after administration of one-tenth normal hydrochloric acid is measured, and the pH of the content of each tube

is estimated. If sufficient fluid is obtained the tube of maximum pH is used to measure the tryptic content. Trypsin is measured in preference to the other enzymes, as amylase is normally absent in infants aged under three months, and the estimation of lipase is less reliable for technical reasons.

The methods used will be briefly outlined.

Gross's Method.—Gross's method has been used here, as it is reasonably accurate and dependable and simpler, and more suited to the routine hospital laboratory than the others. A series of dilutions of duodenal juice are added to a casein substrate. After fifteen minutes' incubation acetic acid is added to each tube. This precipitates more easily, and the end point is taken to be the first clear tube. The result is expressed as the number of millilitres of casein solution completely digested by one millilitre of the duodenal juice. The normal figure is regarded as being from 20 to 50 millilitres.

Micro-Kjeldahl Method.—This method depends on the digestion of casein by duodenal juice and estimation of the non-protein nitrogen after a fixed period of time. Ammonia is absorbed into sulphuric acid by the Micro-Kjeldahl method. The result is expressed as the number of millilitres of one-tenth normal sodium hydroxide solution required to neutralize the acid.

Viscosimetric Method.—The viscosimetric method is used widely in America by Dorothy Anderson and other workers. It requires special apparatus and is not suitable for us here. The method depends on the decrease of viscosity of gelatin in the presence of trypsin. One unit of trypsin is the amount of enzyme required to decrease the viscosity of the mixture by 20% in one hour. Table I is a summary of the results obtained by Dorothy Anderson by means of this method. A brief perusal of this table shows how decisively a diagnosis of fibrocystic disease can be made by this or any other reasonably accurate method.

Reports of Cases.

The following case first drew attention to this complaint.

J.A.T., aged two years and seven months, a female patient, was admitted to the Children's Hospital on September 13, 1944, with a history of a cough since birth. After being breast fed for five days was put on to a cow's milk mixture. When three weeks of age she developed diarrhœa, and one week later she was given "Lactogen". Loss of weight occurred and diarrhœa continued, the stools being offensive and containing curds. At the age of three months she was put back on to a cow's milk mixture. At six months she had an attack of bronchitis, and at ten months the diagnosis of cœliac disease was made and "Trufood" milk was tried. Improvement in her condition occurred at the time, but she soon relapsed. After a bout of diarrhœa at the age of eleven months, prolapse of the rectum occurred, and this subsequently recurred repeatedly until the time of her death. At eighteen months she had bronchopneumonia, and until she was two years of age she had periodic bouts of diarrhœa, although she was receiving a "cœliac" diet and "Trufood" milk all the time. For six months prior to her admission to hospital she had diarrhœa intermittently, her cough was much worse and she lost weight rapidly. Her appetite was poor and the stools were grey and bulky.

Examination showed the child to be pale and emaciated; her weight was 16 pounds four ounces, her trunk and limbs were wasted and her abdomen was distended; the liver was not palpable. The fæcal fat content was 48% (split fat 85%; unsplit fat 15%). The Mantoux test produced no reaction. X-ray examination revealed congestion at the bases of both lungs. She was put on a strict "cœliac" diet and her subsequent history was as follows. On September 20 she suffered from pneumonia and was given treatment with a sulphonamide. The pneumonia remained unresolved and flared up again on October 4. It responded to a sulphonamide. On October 14 a slight increase in weight was recorded. On October 26 she had another attack of bronchopneumonia, and still another on November 10. On November 15 the fat content of the stools was 8%. She had frequent bouts of coughing with cyanosis. On January 3, 1945, she developed scarlet fever and was very ill for some days. On February 2 her weight was 19 pounds 6 ounces. On February 10 her weight was 18 pounds. On February 28 she was discharged home. She was readmitted to hospital on April 18, cyanosed, greatly œdematous, in a state of congestive cardiac failure, and passing red blood cells and granular and hyaline casts in the urine. She did not respond to treatment, and died on May 2.

At the post-mortem examination the pancreas, on macroscopic inspection, was small, firm and atrophic, and whitish-grey pin-prick nodules representing dilated ducts were visible on the surface. Microscopic examination revealed the typical increase in connective tissue, enormous dilatation of ducts and absence of normal pancreatic tissue (see Figure I). In the lungs cylindrical bronchiectasis was apparent, especially at the bases, and empyema and patches of bronchopneumonia were found (Figure II). The kidneys and other organs appeared normal.

The second case was one in which the diagnosis was made before death by the method described.

M.McA., a female patient, aged seven months, was admitted to hospital on December 22, 1944. She was a normal, full-term baby whose birth weight was six pounds seven ounces. At the age of three weeks she had suffered from pneumonia and had had a cough ever since. At the age of five months she developed pneumonia again. For the two weeks prior to her admission to hospital she had been feverish, and had been suffering from vomiting, coughing, rapid respirations and wheezing. The stools had been of normal consistency, but were frequently passed and foul-smelling on the day of her admission to hospital. The diet was cow's milk and light baby diet.

On examination, the child had a temperature of 104° F.; her tonsils were large, but healthy, and her weight was 12 pounds two ounces. Examination of the chest revealed crepitations at the apex of the right lung. The abdomen was distended, but the liver was impalpable. She responded well to sulphamerazine. The stools were noticed to be bulky and offensive, and on December 27 the total fat content was 41%, 66% of which was split fat. In view of the child's age, she was regarded as suffering from the cœliac syndrome.

TABLE I.
(*After* Anderson and H. F. Philipsborn, junior, *et alii.*)

Type and Number of Subjects.	Quantity of Fluid Obtained Before Intravenous Administration of "Secretin" (Average).	Quantity of Fluid Obtained After Intravenous Administration of "Secretin" (Average).	Tryptic Activity.	Amylolytic Activity. (Viscosimetric.)
Normal children (53)	18 millilitres.	45 millilitres.	Always greater than 10 units. Maximum, 180 to 240 units at age of two years.	100 to 250 units per millilitre.
Suffering from chronic diarrhœa, unknown causation (25).	Not recorded.	Not recorded.	Normal.	Decreased (after age of six months).
Suffering from cœliac disease (3)	10 millilitres.	50 millilitres.	Normal.	Normal.
Marasmic infants (3)	Not recorded.	Not recorded.	Decreased (average 20 to 40 units).	Decreased.
Suffering from fibrocystic disease of the pancreas (15)	8 millilitres.	7 millilitres.	Average 0 to 1 unit (maximum 6 units).	Usually about, never greater than, 40 units.

On January 10, 1945, the fæcal fat content was 40%, of which 90% was split. For the next fortnight she was noticed to have an irregular pyrexia with persistent crepitations at the base of each lung. On January 24, X-ray examination revealed congestion of the hilar regions with consolidation of the base of the right lung. On February 8 a rectal prolapse occurred; this frequently recurred in the ensuing weeks. Her weight was 13 pounds five ounces on

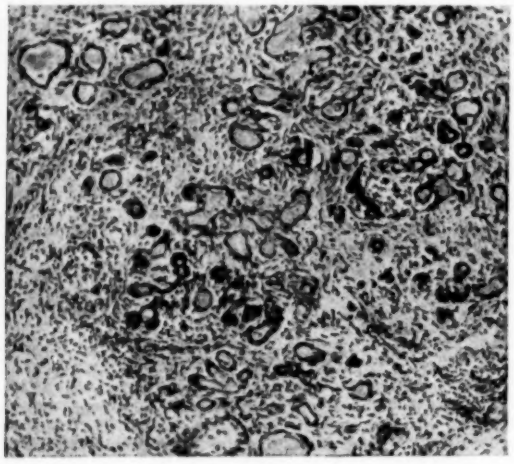

FIGURE I.
Pancreas of J.A.T., showing dilatation of ducts with greatly increased interlobular and intralobular connective tissue. Accumulations of small round cells are present, and several preserved islets of Langerhans can be seen.

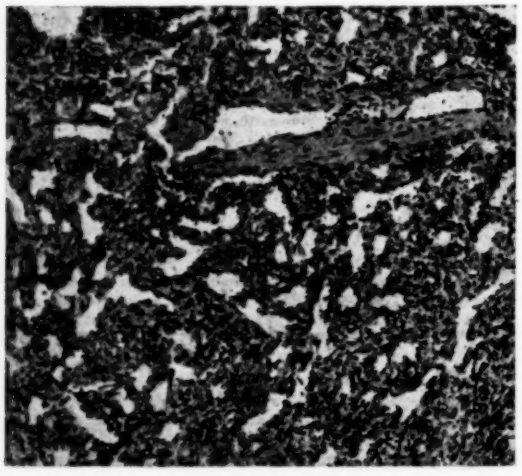

FIGURE II.
Section of a lung of J.A.T., showing gross broncho-pneumonic consolidation.

February 16. She continued to suffer from chest infections intermittently, and *Staphylococcus albus* was grown in culture from the gastric contents. On March 5 she became desperately ill with bronchopneumonia and was treated with penicillin. Her condition gradually improved, and by April 7 her weight was 13 pounds nine ounces; but by April 20 it had decreased to 12 pounds 10 ounces. Her clinical condition appeared to improve for some weeks, and on May 20 duodenal contents were aspirated. A small quantity of fluid was obtained, and stimulation of the pancreas with one-tenth normal hydrochloric acid did not appreciably increase the volume. No tryptic activity was present in either sample. was then made. One week later she developed broncho-pneumonia again, and despite the exhibition of sulphonamides and penicillin, died on June 1.

At the post-mortem examination a small (although not particularly firm) pancreas was found. Microscopic A diagnosis of congenital fibrocystic disease of the pancreas examination revealed the same atrophic changes as in the previous case with complete absence of normal pancreatic

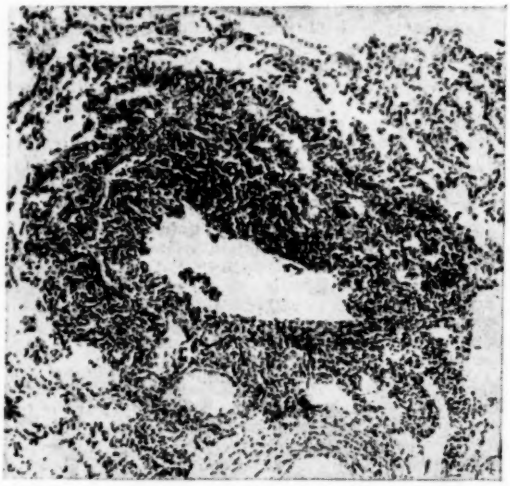

FIGURE III.
Section of a lung of J.A.T., showing bronchiectatic dilatation and emphysema.

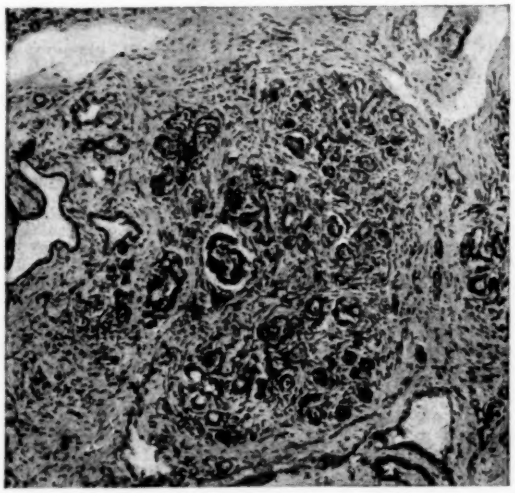

FIGURE IV.
Pancreas of M.McA., showing dilatation of ducts, increased connective tissue and accumulations of small round cells.

secretory tissue (Figure IV). In the lungs, cylindrical bronchiectasis of both lower lobes with patchy broncho-pneumonia was observed. The smaller bronchioles were choked with purulent exudate (see Figure III).

Table II represents the results of the few investigations carried out so far at this hospital, and confirms in a rather small way the American figures summarized in Table I.

Treatment of Fibrocystic Disease.

The treatment is by (*a*) controlling the intermittent exacerbations of respiratory infection, (*b*) the replacement

TABLE II.

Patient, Sex, Age.	Diagnosis.	Volume of Duodenal Contents. (Millilitres.)		Tryptic Activity. (Normal, 20 to 50.)	Amylolytic Activity. (Normal, 2·5 to 5·0.)
		Before Administration of Hydrochloric Acid.	After Administration of Hydrochloric Acid.		
I. E.G., male, two years and three months..	Normal child.	18·0	29·0	50·0	2·5
II. Male, two years	Normal child.	8·0	38·0	50·0	2·5
III. L.D., female, two years	Cœliac disease.	9·0	19·0	50·0	2·5
IV. M.McA., female, one year four months ..	Fibrocystic disease.	4·4	8·1	Nil.	Not estimated.
V. M.T., male, four years	Bronchiectasis, steatorrhœa.	2·5	10·5	2·5	2·5

of vitamin and enzyme deficiencies. Sulphonamides and penicillin have been used with only temporary good effect on pulmonary signs and symptoms. The main weapon in combating pulmonary exacerbations is preventive—when possible, by the removal of the child to a warm, sunny climate.

The use of pancreatic extract, enteric coated, given ten minutes before a feeding combined with the intramuscular injection of large doses of vitamin *A*, is effective in prolonging life from a few months to a year or two. A case is recorded in which the patient is still living at the age of four years, treatment having been started three years previously.

In these cases vitamin *A* absorption is reduced owing to the steatorrhœa; this presumably results in a decreased resistance to infection of the epithelium of the tracheobronchial tree. Oral administration is therefore useless. It may be mentioned that vitamin *A* absorption curves have been used as a method of diagnosis of fibro-cystic disease, the curve obtained being considerably flatter than in the cases of cœliac disease. The method known is not so reliable as the estimation of tryptic activity.

Discussion.

Frequency.

An attempt has been made to arrive at some idea of the frequency of congenital fibrocystic disease at this hospital. In the past four years, 35 cases have been classified as cœliac disease. In 17 of these, the onset was after the age of twelve months, and none of the children had pulmonary or gastro-intestinal symptoms prior to this date. Of the remaining 18 cases, no more than three could be regarded as actual cases of cœliac disease. In 11 of these cases pulmonary symptoms had been present from early infancy; but none of the children, so far as the records reveal, has since died. In such cases as these, investigation of the pancreatic secretion would have been required to exclude congenital fibrocystic disease; but they would very likely fall into a separate group not hitherto discussed, which may be called "temporary pancreatic insufficiency". The remaining four patients all died, and all had had respiratory and gastro-intestinal signs and symptoms since early infancy. From their clinical histories, I have regarded them as suffering from congenital fibrocystic disease of the pancreas, although a post-mortem examination was made in only one case. In this case, the pancreas was found to be firm and atrophic, but no sections were made.

Temporary Pancreatic Insufficiency.

It is suggested that many infants may suffer from a temporary pancreatic insufficiency. In such cases the tryptic activity may be low, but not so low as in congenital cystic disease of the pancreas. Under such a heading may be grouped the following cases: (i) Cases hitherto regarded as of atypical cœliac disease or cœliac syndrome (fibrocystic disease of the pancreas having been excluded). The steatorrhœa in these cases may be due to the toxins derived from some septic focus depressing pancreatic activity. In the eleven cases mentioned above, pulmonary infections are predominant. (ii) Cases of malnutrition or marasmus. In these steatorrhœa is often present with depression of tryptic activity (see Table I), owing possibly to a depressant effect of the lowered metabolism of the body on the pancreatic activity. These patients might well benefit and recover with the administration of pancreatic extract, as well as the usual treatment for such patients, to tide them over their period of pancreatic deficiency. This treatment could be applied even to some of the resistant "dietetic problems" who so often fill hospital wards.

Chronic Toxæmia.

M.T., aged four years (see Table II) was a child suffering from advanced bronchiectasis and steatorrhœa; although he was out of the usual age group, it was thought that he might have been suffering from fibrocystic disease of the pancreas, and duodenal aspiration was performed. The result obtained, however, seemed to exclude that diagnosis, and the child is still alive at the time of writing. It is suggested, therefore, that chronic toxæmia may be a cause of steatorrhœa in children of any age, and further investigations along these lines in the future may be informative.

Summary.

1. The symptoms and signs of congenital fibrocystic disease of the pancreas are presented.

2. A method of diagnosis by duodenal intubation and aspiration of duodenal contents with estimation of tryptic activity is described.

3. The results of these duodenal aspirations are summarized, and the clinical data and post-mortem findings with regard to two children suffering from the disease are reported.

4. A brief discussion of the limited scope of available treatment is given.

5. Temporary pancreatic insufficiency is mentioned, and the possibility that steatorrhœa may occur in chronic toxic diseases is suggested.

Acknowledgements.

My thanks are due to Dr. Reginald Webster, pathologist, and Miss M. Green, biochemist, of the Children's Hospital; to Mr. Marriott of the Department of Histology, University of Melbourne, who made the photomicrographs; and to Dr. J. W. Grieve, Dr. W. McLaren and Dr. Elizabeth Turner for their encouragement.

Bibliography.

H. F. Philipsborn, junior, G. Lawrence and K. C. Lewis: "The Diagnosis of Fibrocystic Disease of the Pancreas", *The Journal of Pediatrics*, Volume XXV, 1944, page 284.

H. F. Philipsborn, junior, *et alii*: "An Analysis of the Duodenal Drainage in the Steatorrhœas", *The Journal of Pediatrics*, Volume XXVI, 1945, page 107.

D. H. Anderson: "Cystic Fibrosis of the Pancreas and its Relation to Cœliac Disease", *American Journal of Diseases of Children*, Volume LVI, August, 1938, page 344; "Pancreatic Enzymes in the Duodenal Juice in the Cœliac Syndrome", *American Journal of Diseases of Children*, Volume LXIII, 1942, page 643.

C. H. Best and N. B. Taylor: "The Physiological Basis of Medical Practice", 1940.

Still, Clough and Clough: "Practical Bacteriology, Hæmatology and Animal Parasitology", Ninth Edition, page 760.

BACKACHE IN SOLDIERS.

By DOUGLAS STUCKEY,
Captain, Australian Army Medical Corps.

THE complaint of backache is common in the army and often receives less attention than it deserves, owing to lack of time or lack of interest on the part of the examiner. The following cases occurred in a unit of an average strength, 700, over a period of approximately three months; the series is unselected, in that it includes all cases of backache occurring in that time. The whole group, of course, consists of young adult males, highly selected both at enlistment and by a period of service of two years or more, so that those with more serious ailments have been eliminated.

This discussion will deal with the clinical aspects of examination and diagnosis, with particular emphasis on two common minor disabilities—namely, the short-leg postural syndrome and fibrositis.

THE HISTORY.

The most important details needed are those concerned with the first onset of pain, its type and any associated conditions. Trauma must be carefully evaluated before being admitted as an ætiological factor; everyone with a sore back seems to be able to remember some injury, recent or remote, to which he ascribes his symptoms. The type of pain is important—whether it is a sharp pain or a dull ache; whether it is constant or intermittent; if it is intermittent, what circumstances give relief and what circumstances bring on pain or aggravate it. An ætiological diagnosis can often be made on the history alone, that of fibrositis in particular being typical.

THE EXAMINATION.

No originality is claimed for the method of examination; but the routine is given in some detail, because it has been found satisfactory in practice. It is an easily remembered sequence, takes only a few minutes to perform and extracts most of the information that can be gained from physical examination; this should in most cases settle the anatomical site of the lesion.

The patient should be stripped except for boots and socks, and should stand in a good light in front of the examiner, who is seated. All movements are tested for limitation or the production of pain.

With the patient standing, a general inspection is made, note being taken of posture, general musculature, obesity, obvious lordosis, kyphosis or scoliosis, or prominence of the sacrospinales. Both iliac crests are palpated; difference in level due to tilting of the pelvis is noted, and whether the normal interval between the lower ribs and the iliac crests is lost. The patient touches his toes, full flexion and extension of the lumbar part of the spine being required. Finally, lateral flexion is carried out.

With the patient seated, an inspection is made; the shape of the lumbar curve is noted and scoliosis is looked for. Rotation movements of the lumbar part of the spine are carried out; the knees are steadied and the shoulders are turned to either side.

With the patient prone, palpation is carried out over the vertebral spines, the sacrospinales, the muscles lateral to spinales, the gluteal muscles, the lumbo-sacral joint and the sacro-iliac joints. The thighs are extended singly. This extends the hip and sacro-iliac joint of the same side, and extends and rotates the lumbo-sacral and lumbar joints. The lumbar part of the spine is hyperextended; one arm just above the knees lifts both legs, the other hand presses downwards in the small of the back.

With the patient supine, the legs are measured. The knee and ankle jerks are tested; if inequality is present, the plantar reflex should be tried, and the thighs and calves measured for wasting and the two limbs investigated for loss of power. If pain radiates below the knee, sensation should be tested at this stage. Active and passive movements of the hip joints are then carried out. Straight leg raising (Lesèque's test) is next tried. The raising of a single leg in turn stretches the sciatic nerve and hamstrings, rotates the homolateral sacro-iliac joint, flexes the lumbo-sacral joint and rotates the sacrum on the contralateral ilium, which is fixed by the extended thigh. Normally this movement is limited by tension of the hamstrings felt behind the knee at angles varying from 70° to 100°; but no pain is felt in the back. When both legs are raised together, rotation of the ilia on the sacrum occurs at a greater angle, followed by flexion of the lumbo-sacral joint and the lumbar part of the spine. The lumbar part of the spine is hyperflexed and twisted by forcibly bringing one or both knees up onto the chest, the shoulders remaining flat on the couch. The feet are then examined after removal of the boots and socks.

Measurement of Legs.

I have never been able to convince myself that I could estimate accurately a difference in the length of the legs by the usual clinical method of measuring the interval between the anterior superior iliac spine and the medial malleolus on either side by means of a tape measure or piece of string and comparison of the two measurements. Both these bony points have an indefinite area and vary in size and palpability from individual to individual, and errors in measurement of half an inch or more may easily be made. The accuracy of the following method is based, first, on the ability of the eye to detect even minor degrees of asymmetry, and secondly, on the fact that only one measurement is made, and that a direct measurement between two definite surfaces.

The patient lies supine as far as possible parallel to the edge of the examination table. The anterior superior iliac spines are palpated and the pelvis is set exactly square; a piece of string held across the table at right angles at the level of the spines makes this easier. The legs are then laid parallel to the sides of the couch, with heels together. The booted feet are steadied at right angles to the legs. Difference in length can now be measured accurately from the level of the heel of one boot to the other by means of a ruler.

Possible fallacies are as follows: (i) Faults in the boots themselves. These, if present, have exactly the same effect as inequality in the length of the legs and need correction in the same way. (ii) Asymmetry of the pelvic girdle, so that the anterior superior iliac spines come to be at different levels though the sacrum is upright. This error can be eliminated by examination of the patient in the standing position. If differences in leg length of even a quarter of an inch are present, slight tilting of the pelvis can be shown by palpation of the iliac crests or the posterior iliac spines, lumbar scoliosis to the affected side can be seen, and increased tension of the contralateral sacrospinales can be either seen or palpated.

CLINICAL TYPES.

Clinical types are set out in Table I.

TABLE I.
Classification of Cases.

Type of Syndrome.	Number of Cases.
Postural syndromes:	
General	1
Short-leg syndrome	13 } 14 (35%)
Fibrositis:	
Post-traumatic	2
Post-infective	3
Postural (short leg)	13
Focal sepsis	5
Unclassified	} 23 (57·5%)
Traumatic	1
Joint and bony lesions	2
Nerve-pressure syndrome	— } 3 (7·5%)
Total	40

INTRAVENOUSLY

INTRAMUSCULARLY

★'NEPTAL'

BRAND MERCURAMIDE

for the RELIEF of ŒDEMATOUS CONDITIONS

3 routes

ORALLY

The administration of a mercurial diuretic in the treatment of cardiac œdema is almost a routine procedure. The choice lies in the product to be used. 'Neptal' has proved itself over many years as a preparation upon which the physician can place his full reliance.

'Neptal' brand Mercuramide is available in ampoules (1 c.c. and 2 c.c.) for intramuscular and intravenous injection, and in tablets (0.16 Gm.) for oral use. The tablets are found particularly useful by the busy general practitioner.

'NEPTAL' is available in:—

SOLUTION

Boxes of 6 x 1 c.c. ampoules
" " 6 x 2 c.c. "

TABLETS

Containers of 25 x 0.16 Gm.

Also available in boxes of 20 ampoules and containers of 500 x 0.16 Gm. tablets.

★ Trade Mark

M&B

MAY & BAKER (AUSTRALIA) PTY. LIMITED, Sydney
Distributors for MAY & BAKER, LIMITED, Dagenham, England

5092

Some call it...

"WINTER DIARRHOEA"!

Incidence High!.. Etiology Obscure!

The incidence of diarrhoea and intestinal irritation may be high during the winter months. The exact etiology in many instances is obscure. Some physicians feel that it may be associated with so-called "gastric influenza," while others believe that the diarrhoea is due to various types of gastro-enteritis caused by paratyphoid bacilli and similar organisms.

Pending exact diagnosis and specific treatment, it is desirable to control the diarrhoea and bring comfort to the patient. A most effective preparation is Wyeth's Kaomagma—a palatable emulsoid of aluminium hydroxide gel and colloidal kaolin.

In diarrhoea from any cause, Kaomagma works—

- √ **by coating the mucosa**
- √ **by reducing the fluidity of the stool**
- √ **by inactivating irritants through adsorption**

HOW TO CONTROL DIARRHOEA WITH WYETH'S KAOMAGMA

AT THE ONSET... Administer two tablespoons of Kaomagma in a little water — AND follow this with one tablespoon of Kaomagma after every bowel movement until stools become consolidated. THEN if indicated, continue treatment with one tablespoon of Kaomagma three times daily.

KAOMAGMA

WYETH'S KAOLIN IN ALUMINA GEL

Wyeth INCORPORATED
INC. IN U.S.A.
44 Bridge Street, Sydney

KO6M

Postural Syndromes.

In postural syndromes, the typical story is of dull, aching, poorly localized back pain, relieved by rest, not noticed in the mornings and becoming worse throughout the day, particularly after much standing or stooping. Men so affected are often tall and "spindly", long limbed, with thin hips and chest, round-shouldered and with poor muscles. Twelve out of thirteen had a short leg, the difference in length being greater than a quarter of an inch. This causes tilting of the pelvic ring and sacrum to the short side, and lumbar and dorsal scoliosis in opposite directions, usually partially corrected by increased tension of the contralateral sacrospinales group. In many of these cases a large psychoneurotic factor is present, and obvious signs of autonomic imbalance and stress can be found—moist shining eyes with dilated pupils, flushed skin, tremor, cold moist hands, exaggerated knee jerks. These men are "poor stuff" mentally and physically—the "constitutional insufficiency" of army terminology.

Treatment consists of correction of obvious postural errors with sedation and encouragement on the mental side, but it is usually disappointing, and these men are often more a liability than an asset to the army.

CASE I.—Private T., aged thirty-nine years, had had backache for one year almost every day; it was a dull ache, more severe when he was bending or lifting or standing for long periods. It was worse towards the end of the day, and relieved by rest.

CASE VI.—Private B., aged twenty-nine years, had had a "sore back" for eighteen months; the pain was constantly present, of vague distribution, and had no particular aggravating factors, but was worse towards the end of the day, and relieved by rest. He also complained of dizzy spells, faintness and attacks of palpitation.

The Short Leg Postural Syndrome.

In normal walking the action of the muscles of the back can be clearly seen. As one foot supports the body weight, the *tensor fasciæ latæ*, the *gluteus medius* and to some extent the *vastus lateralis* and *gluteus maximus* of the same side contract, supporting and tilting the pelvis so that the other leg clears the ground and the centre of gravity of the body is brought towards the supporting leg. The contralateral sacrospinalis group contracts sharply to compensate this tilt and keep the upper part of the body upright. With every step the sacrospinales contract alternately and rhythmically, the spine flexing from side to side like a twanging bowstring between two relatively fixed points, the sacrum below and the mid-dorsal region above. The mechanism is seen in an exaggerated form in walking races.

When one leg is short a greater degree of pelvic tilt is necessary to allow the longer leg to clear the ground, and a correspondingly greater compensatory sideways flexion of the spine to keep the body upright. The strain falls mostly on the homolateral gluteal group and the contralateral sacrospinalis group.

It was found that in this series of 40 patients, no less than 26 (almost two-thirds) had legs with a difference in length of more than a quarter of an inch (Table II).

TABLE II.
Incidence of Short Leg.

Subjects.	Number of Patients Examined.	Three-eighths of an Inch Short.	Half an Inch or More Short.	Total of Men with Short Leg.
Patients	40	11	15	26[1]
Controls	60	5	3	8

[1] Right leg 20, left leg six.

A control series of sixty normal men was examined; eight were found to have legs with a difference in length of the same magnitude. These men were noted to be of short, stocky, muscular build, and this was probably the main factor in compensating their errors and preventing symptoms.

Shortness of the right leg predominated in the group of cases, but no significance was seen in this fact. Thirteen subjects were considered to have a superadded fibrositic lesion, and these cases are discussed below.

The importance of detecting this common fault lies in the ease with which it can be corrected and the good results that follow. When differences up to half an inch are present, the heel is simply built up the required amount; with heavy military boots the added weight of leather has no effect. When greater differences are present, it may be necessary to use cork construction to keep the weight of the boots approximately equal.

CASE X.—Driver W., aged twenty-nine years, complained of backache of fifteen months' duration; it was dull and present throughout the day, and relieved by rest. The right leg was three-quarters of an inch short, and a built-up heel gave relief.

CASE XXVI.—Driver B., aged twenty-four years, had had low back pain more or less constantly for two years; it was worse with lifting and bending and when he stood for long periods, and was relieved by rest. The building up of the right heel 0·25 inch produced symptomatic cure.

Fibrositis.

Fibrositis, that pathologically vague but clinically definite condition, is usually defined as a non-suppurative inflammatory reaction of fibrous supporting tissue, particularly of tendinous insertions and interstitial fibrous tissue of muscles. The lesion is described in textbooks as an exudation of serum and cell infiltration (mostly lymphocytes and histiocytes) with subsequent fibrosis and formation of scar tissue.

W. S. C. Copeman and W. L. Ackerman[9] present evidence based on biopsy and post-mortem examinations that in many cases the lesion is a herniation of fat through fascial sheaths covering muscles. They describe three types: non-pedunculated, pedunculated, and a foraminal type through fascial foramina transmitting small nerves and vessels. The nodules consisted mostly of fatty tissue with young cellular fibrous tissue growing into it. The blood vessels were congested, with thickened walls and perivascular proliferation of connective tissue. Copeman and Ackerman suggest as possible causes congenital fascial weaknesses, trauma, prolonged muscle strain or spasm or the effect of pyrexial illnesses, and they postulate that pain arises in these enclosed areas of fat when they become œdematous and are under tension owing to defect in blood supply or lymphatic drainage.

Clinically these people often complain quite aptly that they have "a chill in the back" or "cold in the back". The attacks of pain, which may be severe and is of sharp lancinating type, are often provoked by cold or wet weather, chilling, sleeping in wet clothes and so on. Some complain that they get an attack "every year as winter comes on". Others find that a cold or recurrent benign tertian malaria invariably gives them a "bad back". This intermittent history with periods of complete freedom and attacks of pain is typical.

The pain is usually worse on standing, sitting or working over a bench in a fixed position for any length of time. A man standing at attention for ten minutes may find the pain intolerable. It is relieved by warmth and by moderate exercise and moving round, and so is often worst on rising in the morning and diminishes throughout the day. Heavy exercise usually makes it worse.

On examination of the patient, all movements involving active contraction or passive stretching of the affected muscle cause pain, and invariably a definitely localized tender spot or area is present and sometimes a palpable nodule in chronic cases. These spots are usually found by careful deep palpation over the origins or along the edges of muscle masses, most commonly the sacrospinales or the gluteal group, and are usually unilateral even when the pain complained of is bilateral. Widespread referred pain and muscle spasm are common. Injection of a small amount of local anæsthetic agent as a diagnostic measure should give complete temporary symptomatic relief. In this series 24 cases were classed as of fibrositis.

XUM

Ætiology.

Trauma.—Trauma is often assigned as the principal ætiological factor; but in only two cases of this series was the condition classified as post-traumatic.

CASE XXII.—Private S., aged thirty years, had hurt his back in a motor-truck accident about nine months previously. He completely recovered in two months, and he had no trouble until one week prior to examination, when the same pain came on again. It was worse on lifting or straightening after bending down. This recovered in four weeks with the application of hot packs and the exhibition of salicylates.

Infection.—W. S. C. Copeman[1] puts forward a plausible theory of the formation of "myalgic spots" *de novo* in the course of febrile illnesses, such as influenza, dengue fever or rubella, in which muscular pains in the back and limbs are common. He postulates that some of these spots persist and are reactivated by subsequent febrile illness, minor traumata, focal sepsis or chill. Three cases of this series illustrate this mechanism.

CASE VIII.—Lieutenant W., aged twenty-eight years, who had had two years' service, complained of severe backache, principally on the right side, of four days' duration; the pain limited movement and activity, but was relieved by rest. There was no history of previous back pain or trauma. Next day a faint erythematous papular rash was visible on the trunk, and within twenty-four hours there was a widespread rash typical of rubella, with enlarged post-auricular glands, a temperature of 101° F. and intensified pain in the back. With the return of the temperature to normal forty-eight hours later, the pain disappeared; but it could be elicited even a fortnight later by deep pressure over a tender spot in the right sacrospinalis.

CASE XIX.—Driver C., aged twenty-seven years, who had had forty-two months' service, complained of intermittent pain in the back for an indefinite period starting from an attack of scarlet fever as a child. It was worse in cold, wet weather and absent in a hot, dry climate. At that time he suffered from a constant dull ache with sharp pains on movement after standing or sitting in one position for any length of time. Exercise gave relief.

Posture.—Fourteen patients out of 24 suffering from fibrositis had the short-leg syndrome. In many cases the fibrositic lesion was in the contralateral sacrospinalis, which takes most of the burden of compensation. It seems possible that lesions initiated by trauma or during febrile illnesses may be perpetrated by the added strain of postural errors in the muscle concerned. The strain placed on certain muscles and their tendinous origins by postural errors may in itself be sufficient to cause the fibrositic lesion, especially when poor muscular development of the back is a factor, or the added strain of marching with heavy packs and fatigue.

TABLE III.
Physical Examination.

Case Number.	Subject's Age. (Years.)	Months of Service.	Duration of Pain.	General Physique.	Short Leg.	Postural Errors.
1	39	48	1 year.	Poor.	——	Extreme lordosis. Prominence of sacrospinales.
2	—	—	1 month.	Good.	——	——
3	41	55	18 hours.	Poor.	——	Stooped forward, unable to straighten.
4	36	45	2 years.	Average.	Right leg, half an inch.	Stooped; flattening of lumbar curve. Tilted pelvis and scoliosis.
5	35	51	2 months.	Tall and "spindly".	Right leg, three-eighths of an inch.	Pelvis tilted; scoliosis.
6	29	50	18 months.	Tall and poorly muscled; neurosis.	Right leg; three-eighths of an inch.	Slight tilt of pelvis; scoliosis.
7	29	36	1 year.	Average. Neurosis.	Right leg, three-quarters of an inch.	Usual errors.
8	28	24	4 days.	Good.	——	——
9	36	54	1 year.	——	Right leg, three-eighths of an inch.	Lordosis; usual errors.
10	29	33	15 months.	Tall and poorly muscled. Severe neurosis.	Right leg, three-quarters of an inch.	Lordosis; usual errors.
11	37	52	6½ years.	Good.	Left leg, half an inch.	Usual errors.
12	25	54	2 years.	Too tall and spindly. Severe neurosis.	Right leg, three-quarters of an inch.	Usual errors.
13	25	54	2 years.	Poor.	Right leg, more than half an inch.	Stooped; complete loss of lumbar curve. Usual errors.
14	23	36	10 months.	Slightly built.	Right leg, one-quarter of an inch.	Slight pelvic tilt and scoliosis.
15	28	45	1 month.	Good.	Right leg, half an inch.	Usual errors.
16	27	37	9 months.	Average.	——	——
17	24	38	6 months.	Good.	——	——
18	28	—	2 weeks.	Good.	——	——
19	27	42	Indefinite.	Good.	——	——
20	26	52	2 years.	Average.	——	Stooped.
21	36	42	—	Good; stocky build.	Left leg, three-eighths of an inch.	Slight tilt of pelvis.
22	30	46	1 week.	Average.	——	——
23	29	50	2 years.	Average.	Left leg, three-eighths of an inch.	Usual errors.
24	25	38	14 months.	Lanky and overgrown.	Left leg, half an inch.	Usual errors.
25	39	56	2½ years.	Average.	Right leg, half an inch.	Usual errors.
26	24	54	2 years.	Poor.	Right leg, three-eighths of an inch.	Usual errors. Tension left sacrospinalis.
27	23	54	2½ years.	Average.	Right leg, half an inch.	Usual errors.
28	31	40	2 years.	Average.	——	Pendulous abdomen.
29	28	54	Many years.	Poor. Severe neurosis.	Left leg, three-quarters of an inch.	Usual errors.
30	36	56	3 years.	Average.	Right leg, three-eighths of an inch.	Tilted pelvis.
31	24	42	6 days.	Poor; long, slender back.	Right leg, three-eighths of an inch.	Usual errors.
32	34	60	2½ years.	Average.	——	——
33	27	48	1 year.	Good.	Right leg, five-eighths of an inch.	Tilted pelvis; scoliosis.
34	32	58	6 months.	Good; rather obese.	Right leg, one inch.	Usual errors.
35	33	36	3 years.	Good.	——	——
36	36	30	1 year.	Good; fairly fat.	Left leg, half an inch.	Usual errors.
37	24	36	3 years.	Thin, lanky, poor muscles. Severe neurosis.	Right leg, three-eighths of an inch.	Kyphosis and scoliosis.
38	26	30	2½ years.	Fair.	Right leg, three-eighths of an inch.	Usual errors.
39	32	40	1 year.	Poor.	Right leg, half an inch.	Lumbar lordosis; dorsal kyphosis; slight scoliosis.
40	26	42	—	Poor; tall and "spindly".	Right leg, three-eighths of an inch.	Round shoulders; slight scoliosis.

TABLE IIIB.
Physical Examination.

Case Number.	Tenderness.	Pain on Movement.			Diagnosis.	
		Lumbar Part of Spine.	Hip Joints.	Straight Leg Raising.	Anatomical.	Ætiological.
1	Over lumbo-sacral joint.	All full movements. X-ray findings negative.	—	Right leg, 60°. Left leg, 60°.	—	Postural.
2	Deeply, just below right iliac crest.	—	Internal rotation, adduction.	Right leg, 60°.	Right gluteal group.	Fibrositis.
3	Over left sacro-iliac joint.	All movements.	—	Right leg, 90°. Left leg, 45°. Both legs, 60°.	Left sacro-iliac joint.	Strain.
4	Left sacrospinalis, level of fourth lumbar vertebra.	Full flexion, flexion to right, rotation to left.	—	Right leg, 90°. Left leg, 45°.	Left sacrospinalis.	Fibrositis (postural).
5	Left sacrospinalis, spines, third and fourth lumbar vertebræ.	Mild, dull pain on all full movements.	—	—	—	Postural.
6	—	Mild pain on all full movements.	—	—	—	Postural.
7	Variable.	Inconstant.	—	—	—	Postural.
8	Right sacrospinalis at level.	Flexion, active to right.	—	Right leg, 60°.	Right sacrospinalis.	Acute fibrositis.
9	Fifth lumbar vertebra, with spasm.	Passive flexion to left.	—	—	—	Postural.
10	Left sacrospinalis at level of fifth lumbar vertebra.	Flexion to left; X-ray finding, *spina bifida occulta*.	—	—	—	Postural.
11	—	—	—	—	—	Postural.
12	Right sacrospinalis with spasm.	Flexion; flexion to right.	—	Left leg, 60°.	Right sacrospinalis.	Fibrositis (postural)
13	—	—	—	—	—	Postural.
14	Both sacrospinales, left, right, at level of fifth lumbar vertebra.	Full flexion, flexion to right, slight on rotation.	—	Right leg, 45°. Left leg, 60°. Both legs, 45°.	Sacrospinales.	Fibrositis (postural).
15	Right sacrospinalis.	Flexion, flexion to right.	—	—	Right sacrospinalis.	Fibrositis (postural).
16	Left sacrospinalis at level of second and fourth lumbar vertebræ.	Flexion, flexion to left.	—	—	—	—
17	Deeply, below right iliac crest posteriorly.	—	Right hip, flexion, adduction.	Right leg, 30°. Left leg, 90°.	Right gluteal group.	Fibrositis.
18	Deeply, below both iliac crests.	—	Both hips, adduction, internal rotation.	Right leg, 45°. Left leg, 45°.	Both *glutei medii*.	Fibrositis.
19	Left sacrospinalis, at its insertion.	Flexion, flexion to right.	—	Right leg, 60°. Left leg, 45°.	Left sacrospinalis,	Strain, traumatic.
20	Both sacrospinales, at level of fourth lumbar vertebra.	Hyperflexion, lateral flexion, rotation to either side.	—	—	Sacrospinales.	Fibrositis.
21	Over lumbo-sacral joint.	Hyperextension and hyperflexion, severe lateral flexion — referred to opposite buttock and thigh.	—	Right leg, 60°. Left leg, 60°. Both legs, 45°.	Lumbo-sacral joint.	Arthritis.
22	Right gluteal group.	—	Extreme flexion, external rotation and abduction of right hip.	Right leg, 45°.	Right gluteal group.	Fibrositis (postural).
23	Left sacrospinalis at level of fifth lumbar vertebra.	Straightening after flexion, lateral flexion.	—	Left leg, 60°.	Left sacrospinalis.	Fibrositis (traumatic)
24	Both sacrospinales, left, right, at level of fourth lumbar vertebra.	Full flexion, lateral flexion.	Hyperextension of single legs.	—	Sacrospinales.	Fibrositis (postural).
25	Below left iliac crest, posteriorly.	—	Left hip, full flexion, adduction.	—	Left gluteal group.	Fibrositis (postural).
26	Left sacrospinalis at level of fourth and fifth lumbar vertebræ.	Flexion, lateral flexion to right, rotation to right.	—	Left leg, 30°. Right leg, 70°.	Left sacrospinalis.	Fibrositis (postural).
27	—	—	—	—	—	Postural.
28	—	—	—	—	—	Postural.
29	Sacral origins of sacrospinalis, left and right.	Straightening after flexion, rotation to right.	—	—	Left sacrospinalis.	Fibrositis.
30	—	—	—	—	—	Postural.
31	Left sacrospinalis at level of fifth lumbar vertebra.	Flexion, flexion to right.	—	Left leg, 80°.	Left sacrospinalis.	Fibrositis (postural).
32	Right sacrospinalis at level of fourth lumbar vertebra.	Full flexion, flexion to right.	—	Both legs, 75°.	Sacrospinales.	Fibrositis (postural).
33	—	Full rotation.	—	—	Sacrospinales.	Fibrositis (postural).
34	Left sacrospinalis at level of fourth and fifth lumbar vertebræ.	Full rotation, hyperflexion.	—	Right leg, 90°. Left leg, 60°.	Left sacrospinalis.	Fibrositis (postural).
35	Left sacrospinalis.	—	—	—	Left sacrospinalis.	Fibrositis (postural).
36	—	Full rotation, hyperflexion.	—	—	—	Fibrositis.
37	Sacrospinales, left, right, at sacral insertion.	Full sideways flexion.	Left hip, hyperextension.	—	Sacrospinalis.	Fibrositis (postural).
38	Sacrospinalis at first lumbar vertebra on left side, at fifth lumbar vertebra on right side.	Sideways flexion, full rotation.	—	Left leg, 60°. Right leg, 80°.	—	Postural.
39	Left sacrospinalis, at level of third lumbar vertebra.	Hyperflexion, straightening after flexion.	—	—	—	Fibrositis (postural).
40	Left gluteal group.	Flexion to left.	—	—	—	Postural.

CASE XXXVI.—Private S., aged thirty-six years, who had had thirty-eight months' service, complained of backache intermittently over the last twelve months. Attacks lasted three or four days, and he was symptomless in the intervals. Examination revealed the short-leg syndrome, and correction has given him freedom from attacks over a period of five months.

Cold, Dampness and Chill.—It seems hard to understand how cold, dampness and chill can initiate a deep-seated lesion in muscle; but they undoubtedly do precipitate symptoms in the predisposed, possibly by some reflex vasomotor effect from the skin causing œdema in affected tissues.

Unclassified Causes.—There remain cases in which no ætiological factor can be found, but in which the typical picture of fibrositis is still present.

CASE XVI.—Driver C., aged twenty-seven years, who had had thirty-seven months' service, complained of pain in the back on the right side low down, shooting into the right leg, present intermittently for nine months. This was usually more severe in the mornings or on sitting in one position for some time, and was relieved by moderate exercise. Local analgesia of a tender spot over the right gluteal group gave complete temporary relief.

Treatment of Fibrositis.

Acute Fibrositis.—Rest is essential in the early stages, and in the case of the back this means rest in bed for a few days. Aspirin or salicyates are helpful in relieving pain, but they seem to have no specific effect. Heat in the form of a hot bath, hot packs, poultices or radiant heat is comforting and seems to speed improvement, which usually progresses at least to the subacute stage within a week.

Subacute and Chronic Fibrositis.—Locally applied heat for a period of fifteen to twenty minutes, followed by firm deep massage and moderate exercise, is the mainstay of treatment, and a good masseur can produce great relief and sometimes permanent cure by treatment over a period of one to two weeks, during which time the patient carries on with his ordinary duties. Postural errors should be corrected. The built-up heel gives good results in the short-leg syndrome, and this correcting measure alone sometimes produces permanent relief. Local infiltration of tender spots with "Novocain" solution (0·5% or 1%) gives temporary relief, and when followed by deep massage and a full range of passive movements occasionally produces a permanent cure.

Five to ten millilitres of "Proctocaine" have been used for infiltration. The oily base gives prolonged analgesia up to two weeks in duration, allowing free, painless movement and exercise, and relief seems to be permanent in several cases. Copeman[1] suggests "teasing" of the fatty nodule with a needle point after infiltration with local anæsthetic solution. He found that biopsy was curative. Another possible line of approach is the injection of small quantities of sclerosing fluids into the local lesion.

Traumatic Type.

Acute strain of muscles or tendinous attachments from actual muscular effort occurs much less frequently than might be supposed and usually responds to immediate rest followed by normal exercise. If the condition becomes chronic, the clinical picture differs in no way from fibrositis of any other ætiology.

Direct trauma involving bones and joints is considered in the next section.

Bone and Joint Lesions.

Bone and joint lesions include strain and subluxation of joints, the various arthritides, *spondylitis deformans*, and bony lesions, either traumatic or due to disease (tuberculosis, osteomyelitis *et cetera*). All movements involving the affected part may be limited and painful, but important points are pain on hyperextension (which relaxes the important muscle groups), pain on rotational movements of joints, and the response to straight leg raising. When a sacro-iliac lesion is present, pain is felt at the angle of 45° on the affected side and 90° on the other, and when both legs are raised pain occurs at some intermediate point. In lumbo-sacral or lumbar lesions, raising of either leg produces pain at about 60°, and raising of both legs at 45°.

Spondylolisthesis, which may present for the first time in adult life, should be remembered, with its distinctive clinical picture of pronounced lumbar lordosis, prominent abdomen and loss of the normal interval between the lower ribs and the iliac crests on both sides.

X-ray and other investigations are necessary to establish a final diagnosis in these cases.

Nerve-Pressure Syndrome.

In the nerve-pressure syndrome, definite physical signs are present—diminution or loss of reflexes, wasting of muscles, loss of power, sensory loss of different types. The causes include osteoarthritis of the lumbar part of the spine, intervertebral disk displacement, true interstitial neuritis or radiculitis, and newgrowth, either intraspinal or in the vertebral bodies. Here again further investigation is necessary for diagnosis.

Referred Pain.

For completeness must be included referred pain from visceral disease—renal, ureteric, prostatic, rectal. Other symptoms or signs are usually present in these conditions and direct investigation along the correct lines.

SUMMARY.

An analysis of a series of cases of backache is presented with full details of physical examination.

Special mention is made of the measurement of differences in length of legs, and of the short-leg postural syndrome, its incidence, importance and treatment.

The ætiology and clinical picture of fibrositis are discussed, with notes on treatment.

Other conditions causing backache in the male are mentioned from the point of view of differential diagnosis.

ACKNOWLEDGEMENT.

I am indebted to the Director-General of Medical Services for permission to publish this paper. My thanks are due to Lieutenant-Colonel K. C. T. Rawle and Major R. S. Day for their encouragement and criticism.

REFERENCES.[1]

(1) W. S. C. Copeman: "Aetiology of the Fibrositic Nodule", *British Medical Journal*, August 28, 1943, page 263.

(2) W. S. C. Copeman and W. L. Ackerman: "Fibrositis of the Back", *The Quarterly Journal of Medicine*, Volume XIII, New Series, April-July, 1944, page 37.

BLOOD LOSS IN CÆSAREAN SECTION.[2]

By LOIS BENSON, M.B., B.S. (Sydney),

Wyeth Fellow in Obstetrics, 1944–1945, Sydney.

IT is a well-recognized fact that the hæmoglobin value of pregnant women is considerably lower than that of non-pregnant women of the same age group, while at parturition a normal blood loss occurs to a varying extent, but is said by Pastore[1] to average about 250 millilitres. After parturition changes occur in the circulating blood, and the hæmoglobin gradually returns to a level approximating that of the non-pregnant woman. On the other hand, patients who are delivered by Cæsarean section are subjected to the additional blood loss of the operation. It has been stated that in competent hands the hæmorrhage from the surgical procedures is reduced to a minimum and does not significantly increase the total blood loss.

The present paper describes an investigation designed primarily to compare the hæmoglobin value of patients who were delivered *per vaginam* with those who were delivered by Cæsarean section. The investigation was extended to include the changes in hæmoglobin value and plasma protein value of the two classes of patients during their stay in hospital.

SUBJECTS.

Patients Delivered per Vaginam.

One hundred and nine patients admitted in early labour to the Royal Hospital for Women, Paddington, were selected at random. The majority had attended the antenatal clinic of that hospital, but a few received care elsewhere. A sample of blood was obtained at the time of

[1] This article was written in an operational area, and very little literature was available.

[2] An investigation carried out under the direction of Professor Bruce Mayes, of the Department of Obstetrics, University of Sydney, at the Royal Hospital for Women, Paddington, Sydney.

admission to hospital. Further samples were collected immediately after delivery, on the third, fourth and fifth days *post partum*, and just prior to discharge from hospital (about the eighth or tenth day).

Patients Delivered by Cæsarean Section.

All patients on whom Cæsarean section was performed at the Royal Hospital for Women during a period of nine months were, when possible, investigated. There were 61 such patients. Here again the majority had attended the hospital antenatal clinic. The lower segment operation was performed in 30 instances and the classical operation in 31. The reasons for delivery by Cæsarean section are as follows: disproportion, 40 cases; preeclampsia, eight cases; malpresentation, seven cases; *placenta prævia*, three cases; ruptured uterus, two cases; carcinoma of the cervix, one case. Samples of blood were obtained from these patients at the same times relative to the delivery as from those patients delivered *per vaginam*. In addition, a further sample was obtained at the time of leaving hospital, usually about the eighteenth to twenty-first day *post partum*.

Methods.

Collection of Blood Samples.

All samples of blood were obtained by puncture of a vein in the cubital fossa with a needle attached to a dry syringe. A torniquet was used to distend the veins of the arm, but was never allowed to remain in position for longer than a few minutes. Five millilitres of blood were obtained on each occasion and placed in a small test tube (six inches by half an inch) prepared by adding 0·5 millilitre of Wintrobe's oxalate mixture to the tube and drying it in a warm oven. After collection the tubes were inverted several times to dissolve the oxalate.

Determination of Specific Gravity.

The copper sulphate method of Phillips, Van Slyke *et alii*[3] was used to determine the specific gravity. This method consists of dropping blood or plasma into a series of copper sulphate solutions of known specific gravity.

A drop of blood or plasma, on contact with the solution, is coated with a thin layer of copper proteinate. The drop is not altered in specific gravity for about thirty seconds, but is prevented from dispersing. If it is of a lower specific gravity than the solution, the drop will rise, whereas it will sink if it is of greater specific gravity than the solution. The copper sulphate solutions were prepared as described, the stock solution being checked by pycnometry.

Determination of Hæmoglobin and Plasma Protein Values.

The hæmoglobin and plasma protein values of the various samples were calculated by means of the chart of Phillips, Van Slyke *et alii*. These workers claim that the hæmoglobin value as calculated has an accuracy of ± 2·0% in the case of normal blood and of ± 4·0% in the case of abnormal blood. Plasma protein estimations are claimed to be accurate to within ± 0·3 gramme per 100 millilitres. The specific gravity method was selected for the work because it was realized that no other method available would give as high a degree of accuracy.

Results.

Hæmoglobin.

An analysis of the hæmoglobin values obtained from the various patients is shown in Table I and graphically in Figure I.

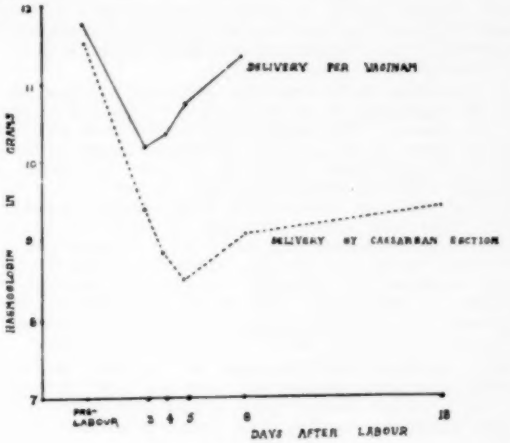

FIGURE I.
Hæmoglobin values.

Pre-Labour Hæmoglobin Value:

As was expected, there was no significant difference between the hæmoglobin value at term of the two classes of patients. The mean figure for 170 patients was 11·67 grammes per 100 millilitres of blood, the standard deviation being 1·60 grammes. If the mean figure for normal healthy females is taken as 13·67 grammes *per centum* (Wardlaw)[6], the figure for women at term is 84·7% of the normal.

The Fall in Hæmoglobin Value.

Delivery Per Vaginam.—The lowest mean figure was recorded on the third day *post partum*. This figure is not significantly less than the mean figures on the fourth or fifth days. It is, however, significantly less than the mean value at term, and represents 86·5% of this value.

The hæmoglobin value of the average patient is, therefore, reduced by 13·5% of its pre-labour value.

Delivery by Cæsarean Section.—The lowest mean figure was recorded on the fifth day after delivery. Again, this figure is not significantly less than the figure recorded on the fourth day, but it is significantly less than the figure on the eighth or tenth day. The lowest mean figure (fifth day) is 73·7% of the mean figure at term.

The hæmoglobin value of the average patient on whom Cæsarean section is performed is, therefore, reduced by 26·3%.

Comparison of Hæmoglobin Values in the Two Classes.—It is obvious that the average patient on whom Cæsarean section is performed loses considerably more blood than

TABLE I.
Hæmoglobin Values.

Period.	Delivery *per Vaginam*.			Delivery by Cæsarean Section.		
	Number of Patients.	Mean Hæmoglobin Value in Grammes.	Standard Deviation.	Number of Patients.	Mean Hæmoglobin Value in Grammes.	Standard Deviation.
Pre-labour	109	11·76 ± 0·10	1·58	61	11·51 ± 0·14	1·64
Third day *post partum*	98	10·17 ± 0·15	2·22	52	9·35 ± 0·18	1·90
Fourth day *post partum*	89	10·34 ± 0·14	1·98	53	8·80 ± 0·17	1·78
Fifth day *post partum*	92	10·72 ± 0·15	2·1	49	8·48 ± 0·18	1·82
Eighth to tenth day *post partum*	104	11·34 ± 0·13	1·89	56	9·09 ± 0·15	1·69
About eighteenth day *post partum*	—	—	—	57	9·40 ± 0·18	1·68

does the patient who is delivered *per vaginam*. One is tempted to conclude that this loss is almost twice as great as that of the average patient in the former class. The mechanism of blood-volume restoration, especially the reserve of the red blood cells in the body, and the hæmatopoietic stimulus of a low hæmoglobin value and reduced blood volume, are so ill understood that such a definite statement is not justified. Nor is one justified in attempting to calculate the reduction of blood volume as a result of the hæmorrhage in the two classes.

A comparison of the standard deviations, however, shows that the variability in blood loss is not grossly different in the two classes. The lowest mean hæmoglobin value was reached later in the patients on whom Cæsarean section was performed than in those who were delivered *per vaginam*. This is presumably due to the greater blood loss. At the time of discharge from hospital (eighth to tenth day) the mean hæmoglobin value of patients delivered *per vaginam* was 96·4% of the mean figure at term and 82·9% of the mean value for normal females (13·67 grammes *per centum*). On the other hand, corresponding figures at the time of leaving hospital (about eighteenth to twenty-first day) for patients delivered by Cæsarean section was 81·7% and 68·8% respectively.

It is obvious, therefore, that at the time of leaving hospital the hæmoglobin value has not been restored to normal in either class of patient, and that the patient on whom Cæsarean section has been performed is still anæmic.

Factors Producing Reduction in Hæmoglobin Value.

The hæmoglobin values obtained from the various patients were analysed to determine whether any particular factor was operative in producing a reduction in the hæmoglobin value of the patients delivered *per vaginam*. In this analysis the absolute reduction in grammes of hæmoglobin was expressed as a percentage of the pre-labour value, and in any particular class the mean of these percentages was recorded.

Age.—The results are summarized in Table II. If the mean percentage reduction is calculated from the figures in Table II and ensuing tables, it will be found to be considerably higher than that in Table I. This is due to the fact that, whereas the figures in Table I are the mean values for the particular day mentioned, those in Table II are figures for the greatest absolute reduction irrespective of the day on which the reduction occurred. Although patients in the twenty-six to thirty years' group appear from the table to have sustained a significantly greater reduction in hæmoglobin value than those in other age groups, it will be subsequently seen that the majority of patients with gross blood loss are included in this particular group.

TABLE II.

Age of Patient.	Number of Patients.	Mean Percentage Reduction of Hæmoglobin Value.
20 years and under	14	11·2%
21 to 25 years	43	12·3%
26 to 30 years	34	20·2%
31 to 35 years	14	14·8%
36 to 40 years	4	5·7%

Parity.—The figures in Table III show that the number of pregnancies is not significantly related to the degree of hæmoglobin reduction.

TABLE III.

Number of Pregnancies.	Number of Patients.	Mean Percentage Reduction of Hæmoglobin Value.
1	58	11·4%
2	22	18·5%
3	15	18·9%
4	6	13·4%
5 or more	8	15·8%

Duration of Labour.—Labour varied in duration in the cases under consideration from two hours to sixty-two hours. In the majority it was between five and twenty hours. However, no relationship could be found between the duration of labour and the percentage reduction of hæmoglobin value.

Weight of Baby.—The mean percentage reduction of hæmoglobin value in 30 mothers whose babies weighed less than seven pounds at birth was 9·2, that in 41 mothers whose babies weighed between seven pounds and eight pounds at birth was 17·2, and that in 37 mothers whose babies weighed more than eight pounds was 14·9. Reduction of hæmoglobin value is therefore significantly less in mothers whose babies weigh less than seven pounds at birth.

Laceration of the Perineum.—Twenty-five patients sustained lacerations of the perineum during labour. The

TABLE IV.
Details of Eight Cases of Gross Blood Loss.

Case Number.	Age of Patient. (Years.)	Number of Pregnancies.	Present Pregnancy.	Type of Delivery.	Condition of Perineum.	Duration of Labour.	Weight of Baby.	Pre-labour Hæmoglobin Value. (Grammes *per Centum*.)	Fall in Hæmoglobin Value.
						Hours.	lb. oz.		
XI	32	1	Normal.	Low forceps.	Intact.	10·0	6 13	11·6	41·3%
XXI	27	2	Normal.	Low forceps.	Lacerated.	5·5	7 10	14·3	45·0%
XXXI ..	28	2	Normal.	Low forceps.	Intact.	9·0	7 4	10·5	46·5%
XXXVII	24	2	Normal.	Low forceps.	Intact.	13·0	9 9	12·9	42·6%
XLIV	29	5	Normal.	Breech: manual removal of placenta.	Intact.	62·5	9 12	12·2	48·4%
L[1] ..	26	3	Normal.	*Post - partum* hæmorrhage; manual removal of placenta.	Intact.	12·0	9 3	11·2	52·0%
LXXXIX	28	1	Mild toxæmia.	Forceps.	Intact.	19·0	7 5	10·5	45·6%
XCIII	26	2	Toxæmia.	Twins; manual removal of placenta.	Intact.	12·0	7 4 6 11	13·0	50·0%

[1] This patient received a transfusion of 860 millilitres of blood on the third day after the birth of the child. It is probable that a greater fall in hæmoglobin value would have been observed had a transfusion not been given.

reduction of hæmoglobin value in these patients averaged 13·8% of the pre-labour figure. This figure is not significantly different from the mean reduction of hæmoglobin value in all patients (14·4%).

Analysis of Eight Cases of Gross Blood Loss.—Table IV shows details of eight patients whose hæmoglobin value was reduced by more than 40% of the original pre-labour figure. It will be seen that the placenta was removed manually in three cases, and that in all eight cases instrumental delivery was performed. In the 109 cases of delivery *per vaginam*, manual removal of the placenta was performed only in three cases, of which details are shown in Table IV. One of the patients was delivered of twins and also had "toxæmia". One other patient was considered to be suffering from mild toxæmia.

Hæmoglobin Reduction in Cæsarean Section.

An analysis of the hæmoglobin values of patients who were delivered by Cæsarean section shows that the mean hæmoglobin reduction of the thirty-one patients on whom the classical operation was performed was 22·2% with a range of 0% to 57·5%. On the other hand, the figure for the thirty patients on whom the lower segment operation was performed was 26·2%, with a range of 3·9% to 47·8%. One may, therefore, conclude that neither operation is more likely to be followed by hæmorrhage than the other.

Plasma Protein Values.

An analysis of the plasma protein values obtained in the two classes of patients is shown in Table V and graphically in Figure II.

Pre-Labour Plasma Protein Values.

The mean plasma protein value of patients on whom Cæsarean section was performed was lower than that of patients delivered *per vaginam*. The difference is statistically significant. If the mean figure for plasma protein content in normal females is assumed to be 6·62 grammes *per centum* (Phillips, Van Slyke *et alii*),[2] the mean figure for pregnant women at term is 88·2% of this value. The mean figure for patients delivered by Cæsarean section is 81·6% of the mean value for normal females.

Fall in Plasma Protein Value.

The lowest mean figure was recorded on the third day *post partum* in both cases. This figure in the case of women delivered *per vaginam* represents only 4·0% of the mean normal figure, and in the case of patients on whom Cæsarean section was performed it represents 78·5% of the normal value. It cannot, however, be assumed that these figures are the lowest in the series of patients observed. It is possible that lower figures may have been recorded on the first and second days *post partum*.

The Rise in Plasma Protein Value.

It can be seen that by the fifth day the average patient delivered *per vaginam* had recovered the lost protein completely, and that by the time of her discharge from hospital on the eighth to tenth day she had a higher plasma protein content than at term. The mean figure on the eighth to tenth day was found to be 91·6% of the mean figure for normal females. On the other hand, patients delivered by Cæsarean section were slower to recover their plasma protein, and at the time of their discharge from hospital on about the eighteenth to twenty-first day, they had still not regained as much protein as those delivered *per vaginam* had regained on the eighth to the tenth day. At the time of their discharge from hospital the plasma protein value represented 87·6% of the mean figure for normal females.

It is probable that this slower regeneration of plasma protein was due to the greater loss at the time of delivery.

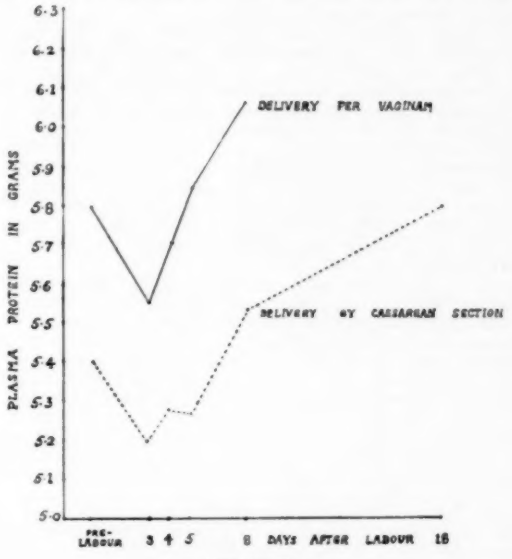

FIGURE II.
Plasma protein values.

DISCUSSION.

The physiological hydræmia of pregnancy has now been well established by estimations of the circulating blood volume. The degree of hydræmia, however, varies considerably in different individuals, and as a consequence the hæmoglobin values during pregnancy will have a wide range of normality. As has been pointed out by the Committee on Hæmoglobin Surveys in a special report to the Medical Research Council,[4] it is difficult to determine the normal hæmoglobin value in pregnancy. Unless a complete blood examination is carried out it is impossible to decide whether the observed reduction of the hæmoglobin value is due merely to the hydræmia or whether it is due to an associated anæmia. The mean value obtained in the present series is lower than that obtained by Dieckmann,[5] who found a mean value of 13·0 grammes *per centum*. Dickie and Dawson,[6] however, found a mean value of 11·1 grammes *per centum*, whilst Oberst and Plass[7] reported a value of 11·93 grammes *per centum* for primiparous patients and a value of 11·45 grammes *per centum* for multiparous patients.

TABLE V.
Plasma Protein Values.

Period.	Delivery *per Vaginam*.			Delivery by Cæsarean Section.		
	Number of Patients.	Mean Plasma Protein Content in Grammes.	Standard Deviation.	Number of Patients.	Mean Plasma Protein Content in Grammes.	Standard Deviation.
Pre-labour	109	5·78±0·04	0·57	61	5·40±0·03	0·51
Third day *post partum*	97	5·55±0·04	0·65	50	5·19±0·05	0·55
Fourth day *post partum*	94	5·68±0·04	0·58	51	5·27±0·06	0·58
Fifth day *post partum*	91	5·84±0·36	0·53	48	5·26±0·05	0·51
Eighth to tenth day *post partum*	105	6·06±0·35	0·55	55	5·53±0·05	0·57
About the eighteenth day *post partum*	—	—	—	57	5·79±0·053	0·56

The figures may be due to the different techniques employed; but it must be remembered that the patients under investigation in the present series were on the whole of the poorer social classes. Iron-containing foods are expensive and not readily obtainable, and it is possible that the diets were deficient in the iron necessary for the increased demands of the hæmatopoietic system. Information on this point should be obtained only by determining the mean hæmoglobin value of a similar group of patients at term for whom iron had been prescribed as a routine measure during pregnancy.

In blood donors it has been found that the lowest hæmoglobin value is recorded on the fourth day[8] after the blood has been taken. It was expected, therefore, that the lowest figure in parturient women would be found on the same day. Actually, the lowest mean value was recorded on the third day, although there was a wide range of individual variability. It is probable that the degree of hydræmia and its gradual reduction produce the more rapid fall and the greater variability. The slow fall, however, is of some importance, because it demonstrates clearly that the degree of blood loss cannot be accurately assessed by a single hæmoglobin determination performed shortly after parturition.

It has been shown that the hæmoglobin value of most patients has not returned to normal or even to the pre-labour figure at the time of their leaving hospital. No information could be obtained on the rate at which the blood volume returns to normal figures; but it is assumed that this occurs fairly rapidly. If this assumption is correct, the low hæmoglobin figure on the eighth to the tenth day is probably due to the effects of blood loss. It is a matter of conjecture whether the routine administration of hæmatinic substances during the latter months of pregnancy and in the early part of the puerperium would result in an earlier return of the hæmoglobin value to normal levels. Patients on whom Cæsarean section has been performed show a considerable mean reduction in hæmoglobin value. The reduction indicates a considerable blood loss, and necessitates consideration of blood transfusion and hæmatinic therapy in the majority of cases.

Dieckmann and Daily[9] obtained similar evidence when they measured blood loss directly. Patients on whom Cæsarean section was performed lost on an average 538 millilitres of blood, compared with a loss of 342 millilitres by patients delivered instrumentally and 107 millilitres by patients deivered spontaneously.

Blood loss, by causing poor oxygenation of the tissues, is said to be a predisposing factor in slow healing and wound infection. The extent of the blood loss following Cæsarean section is such that it may, in part at least, account for the greater mortality of this method of delivery and the greater incidence of sepsis and other puerperal complications. Replacement by transfusion of the lost blood would probably reduce the incidence of these complications and shorten the period of stay in hospital necessary after the operation.

The plasma protein value of patients on whom Cæsarean section has been performed is significantly less than that of patients delivered *per vaginam*. The difference is 0·38 ± 0·05 gramme per 100 millilitres. An analysis, however, showed that 12 of the 61 patients delivered by Cæsarean section were suffering from some form of toxæmia, and in eight instances Cæsarean section was performed because of severe toxæmia. Hypoproteinæmia is a characteristic finding in severe toxæmia. The initial difference in plasma protein values between the two classes of patients is presumably due to the proportion of patients suffering from toxæmia in the Cæsarean section class. The mean plasma protein content found at term is less than that reported by Plass,[10] who gave a mean value of 6·61 grammes per 100 millilitres. This lower figure again may be due to the class of patient investigated.

SUMMARY.

Hæmoglobin and plasma protein values were determined before delivery and at various intervals after delivery in a series of 109 patients delivered *per vaginam* and of 61 patients delivered by Cæsarean section. The mean hæmoglobin value at term was found to be 11·67 grammes *per centum* in both classes of patients. The reduction in the hæmoglobin value after confinement was, however, much greater in patients delivered by Cæsarean section, and the hæmoglobin value did not return to pre-labour value in three weeks.

Similarly, patients delivered vaginally had not only recovered their lost protein, but indeed had, on their eighth to tenth day, a higher plasma protein content than at term, whereas patients delivered by Cæsarean section had not regained as much protein after three weeks as those delivered *per vaginam* had on the eighth to tenth day.

The significance of these findings has already been discussed.

ACKNOWLEDGEMENTS.

The author wishes to acknowledge receipt of a fellowship from Wyeth, Incorporated, during the tenure of which the work reported in this paper was performed. The staff of the Royal Hospital for Women, Sydney, generously assisted by making possible the author's access to the patients. Thanks are also expressed to Major R. J. Walsh for his valuable advice and assistance in the compilation of the results and for his critical survey of the paper.

REFERENCES.

(1) J. B. Pastore: "A Study of the Blood Loss in the Third Stage of Labour and the Factors Involved", *American Journal of Obstetrics and Gynecology*, Volume XXXI, January, 1936, page 78.
(2) J. S. Simmons and C. J. Gentzkow: "Laboratory Methods of the United States Army", 1944, page 223.
(3) H. S. H. Wardlaw: "The Concentration of Hæmoglobin in the Blood of Normal Men", THE MEDICAL JOURNAL OF AUSTRALIA, Volume II, August 2, 1941, page 103.
(4) "Hæmoglobin Levels in Great Britain in 1943", Committee on Hæmoglobin Surveys, Medical Research Council of the Privy Council, Special Report Series Number 252, 1945.
(5) W. J. Dieckmann: "Comparative Studies of the Blood in the Non-Convulsive Toxæmias of Pregnancy", *American Journal of Obstetrics and Gynecology*, Volume XXVI, 1933, page 543.
(6) C. Dickie and J. B. Dawson: "Hæmoglobin Estimation of the Blood of Pregnant Women in New Zealand", *The New Zealand Medical Journal*, Volume XLII, August, 1943, page 11.
(7) F. W. Oberst and E. D. Plass: "Water Concentration of the Blood during Pregnancy, Labour and the Puerperium", *American Journal of Obstetrics and Gynecology*, Volume XXXI, 1936, page 61.
(8) R. J. Walsh and A. K. Sewell: Personal communication.
(9) W. J. Dieckmann and E. F. Daily: "Blood Loss during Cæsarean Section", *American Journal of Obstetrics and Gynecology*, Volume LXXX, 1935, page 221.
(10) E. D. Plass: "Plasma Protein Variations in Normal and Toxæmic Pregnancies", *The Bulletin of the Johns Hopkins Hospital*, Volume XXXV, 1924, page 361.

CHRONIC VESICULITIS AS A FACTOR IN THE PRODUCTION OF NON-GONOCOCCAL URETHRAL DISCHARGES.

By CHARLES E. MARSHALL,
Captain, Australian Army Medical Corps.

(From an Australian Special Hospital.)

As long ago as 1913, Georges Luys[1] wrote as follows:

> One often meets with inflammations of the urethra which are not caused by the gonococcus, and it is a great mistake to think that they are not infectious owing to the absence of the gonococcus. On the contrary, these non-gonococcal urethrites are infectious and apt to cause serious complications in the male, although they assume as a rule a torpid form in the female (slight metritis). The infectious character of these inflammations, is rendered evident by the frequency with which they lead to epididymitis, prostatitis and vesiculitis.

It is suggested that in many cases of non-specific urethritis which appear intractable or which tend to recur, the pathological headquarters are in the seminal vesicles, and that failure to arrest these urethral discharges is due to failure in investigation and treatment of the genital adnexa. The diagnosis of vesiculitis is seldom made in view of the frequency with which this condition occurs,

The *'Change'* without the distress

COMPLETE REPLACEMENT THERAPY IN MENOPAUSAL DISORDERS

'Ovendosyn' provides the essential constituents for the complete control of menopausal symptoms, both physical and psychic. The stilbœstrol dosage ensures a smooth and gradual adjustment to the new endocrine level, and the calcium content, besides guarding against the deficiency of this element associated with the climacteric, greatly reduces—or entirely eliminates—the nausea and vomiting that often complicate treatment with stilbœstrol by itself.

'OVENDOSYN' TABLETS

Samples and literature on request

MENLEY & JAMES (COL) LTD. P.O. BOX 34. NORTH SYDNEY. N.S.W.

The Virtues & Value of Iodine

As an antiseptic, inflammation-reducing and healing agent, the virtues of iodine are universally admitted. There is a wide difference, however, between ordinary presentations of iodine, which are apt to irritate corrode, and blister the skin, and Iodex, the ideal form of iodine for external use. Iodex is highly active, deeply penetrating, and wholly efficient, yet is entirely *bland even on mucous or denuded surfaces.* Iodex indications include: Enlarged glands, open or closed wounds, hæmorrhoids, skin affections such as ringworm or dry eczema, swollen joints, painful muscles, and inflammatory conditions generally.

In conditions associated with much pain, and where greater analgesic action is desirable, and blandness is not essential, Iodex cum Methyl Salicyl. (incorporating 5% methyl salicylate) may be preferably employed.

IODEX

Bandages, if employed, must be light and loose, NOT tight or air-excluding. Iodex dressings will not adhere to open wounds, and can therefore be renewed with a minimum of discomfort to the patient.

MENLEY & JAMES (Col.) LTD., P.O. BOX 34, NORTH SYDNEY, N.S.W.

XUM

'COMBEX'

CAPSULES

Vitamin B Complex

Each 'Combex' Capsule contains 3 mgm. of crystalline vitamin B_1 (Aneurine Hydrochloride) and 0·3 mgm. of vitamin B_2 (Riboflavin), vitamin B_6 (Pyridoxine Hydrochloride) 250 microgrammes, Nicotinamide 10 milligrammes, Pantothenic Acid (as Sodium Salt) 3 mgm., together with other components of the vitamin B complex, derived from liver.

It is probable that in many deficiency diseases attributed to lack of some individual factor of the vitamin B complex, there is a simultaneous lack of the complex as a whole. 'Combex' Capsules are therefore especially suited for the prophylaxis and treatment of general vitamin B deficiency, such as may be expected to exist in conditions where there is an interference with the proper intake or proper utilization of food. Other reported indications for the vitamin B complex are neuritis, atonic constipation, anorexia of dietary origin, etc.

In bottles of 25 and 100 capsules.

●

PARKE, DAVIS & COMPANY

INC. U.S.A., LIABILITY LTD.

SYDNEY

so that in all cases of persistent urethral discharge in which the anterior part of the urethra is apparently normal upon urethroscopic examination, the finger of suspicion should fall upon the seminal vesicles.

Luys's[7] description of chronic vesiculitis could be applied equally well to non-specific urethritis as it is seen today:

> Its causation is somewhat obscure. As a rule vesculitis is accompanied by a trifling discharge. Very often there is nothing but a little moisture about the meatus, or a drop in the morning, and in some cases there is no discharge at all.

The symptoms are rarely acute when chronic vesiculitis is the cause of a discharge, and urethroscopic examination does not often support the diagnosis of anterior urethritis, since in the majority of cases the mucosa is of normal appearance.. Urethroscopic. examination is therefore essential in order to eliminate anterior urethritis in the diagnosis of the condition, and no patient suffering from non-specific urethritis should be treated unless a urethroscope is available.

Apart from gonorrhœa and intraurethral chancre, which does occur from time to time, the causes of a urethral discharge are legion according to the literature.[8] However, the majority of these must be so rare that they are seldom seen. In Australia, it would appear that nearly all cases of non-specific urethral discharge can be attributed to one or more of the following agencies: (i) filtrable viruses,[4] pleuropneumonia-like organisms;[3] (ii) secondary infection by a non-pathogen following chemical or mechanical insult; (iii) chronic vesiculitis and prostatitis.

Reference to *Trichomonas vaginalis* has been deliberately avoided because of the wide variation in the incidence reported by different investigators.

The role of the filtrable viruses and pleuropneumonia-like organisms in the ætiology of non-gonococcal urethral discharges has been clarified by recent work in Australia;[3,4] but the relationship between virus urethritis and chronic vesiculitis has not been clearly established. Undoubtedly such non-specific vesiculitis can occur even in the absence of any pronounced subjective symptoms, and Campbell noticed that in cases of non-gonococcal urethritis in which the organisms were scanty, the prostate appeared infected as early as the tenth day.[9] The ineffectiveness of penicillin (and of sulphonamides in 73% of cases[10]) indicates that the discharge in most cases is due to a virus urethritis or else that it is caused by vesiculitis of virus or bacterial origin. Because of the anatomy of the vesicle, it is unlikely that chemotherapy would be of any great benefit in established vesiculitis even if the organism was susceptible to the drug. This is not to say that chemotherapy should not be tried in all cases of urethral discharge because, although it has been proved disappointing, it does appear to help in a small proportion of cases, probably those of bacterial origin.

Apart from virus urethritis, it is probable that saprophytes can play a part in the production of a urethral discharge. The male urethra normally harbours from 15 to 30 different strains of bacteria in 20% of cases, and these organisms may become pathogenic under various stimuli, one of which is inflammation of the prostate and vesicles.[6]

Incidence of Posterior Infection in Four Groups of Soldiers Suffering from Non-Specific Urethritis.

Four groups of patients were selected for examination from those admitted to a special hospital. In roughly two-thirds of all cases the original urethral smear on admission was reported on as follows: "No organisms, many pus cells, few epithelial cells"; while in about a third of the cases "secondary" organisms were found. No patient giving a previous history of urethral discharge was accepted, and any patient with a profuse, frankly purulent discharge was rejected as possibly suffering from gonorrhœa, even in the absence of direct positive results on examination of smears. Two groups were examined by the glass test, which is explained in the discussion on the diagnosis of chronic vesiculitis, while in the other two groups the prostatic and vesicular fluid expressed was examined immediately in the wet state by the microscope. Wet specimens containing six or less pus cells in a one-sixth objective field were regarded as normal.

In the first group examined, (i) an active urethral discharge was present, (ii) the gonococcal complement fixation test gave negative results, (iii) macroscopic examination by the glass test was made, and (iv) the condition was a first infection. There were 57 patients in this group, of whom 24 produced evidence of infection of the prostate and vesicles, whilst 33 were normal.

In the second group examined, (i) an active urethral discharge was present, (ii) the gonococcal complement fixation test was not performed, (iii) a microscopic examination of wet specimens was made, and (iv) the condition was a first infection. There were 25 patients in this group, of whom 11 were found to have chronic vesiculitis, while 14 were normal.

In the third group, (i) the patients were symptomatically cured and the urine was free from shreds, (ii) the gonococcal complement fixation test was not performed, (iii) macroscopic examination was performed by the glass test, and (iv) the condition was a first infection. There were 27 patients in this group, of whom 11 produced macroscopic amounts of pus from the vesicles, while 16 were normal.

In the fourth group, (i) the patients formed a miscellaneous group of those who were cured and those who had active infections, (ii) the gonococcal complement fixation test was not performed, (iii) microscopic examination was made of wet specimens, and (iv) the condition was a first infection. There were 23 patients in this group, of whom six excreted pus from the prostate and vesicles, while 17 were normal.

All the groups were examined as soon as possible after their admission to hospital, so that it seems either that in a large number of cases the prostate and vesicles were infected at an early stage, or else that there was a pre-existing vesicular infection of gonococcal or non-specific origin. Although it is possible that many soldiers would not admit to a previous attack of gonorrhœa (and this is supported by the greater proportion of patients with urethritis who admit previous gonorrhœa in civilian clinics[10]), the idea that any cases considered were due to a chronic gonococcal infection was eliminated as far as possible by the performance of the gonococcal complement fixation test on the largest group examined; but no attempts were made at prostatic cultures. A persistently positive response to the gonococcal complement fixation test indicates a gonococcal focus of infection. It is also possible for some of these patients to have suffered from an anterior urethritis which was so mild as to escape notice at the time, but which had nevertheless extended backwards to set up an indolent infection of the vesicles. This would then develop over a period of weeks, only to manifest itself as a urethral discharge at a later date. The long incubation period of non-specific urethritis, which varies from seven days to seven months (in one case), would favour this view. In comparison with the foregoing groups it is interesting to note that of 18 patients with non-specific urethritis who had a previous history of gonorrhœa, 12 suffered from chronic vesiculitis. The remaining six had contracted gonorrhœa after the discovery of penicillin. Also, of 25 patients with non-specific urethritis who had suffered a previous attack of the same disease, 18 suffered from chronic vesiculitis. This would suggest the possibility of a relapse; but the numbers are too small to have much significance.

Diagnosis of Chronic Vesiculitis.

The main symptom of chronic vesiculitis is usually a slight mucopurulent discharge from the urethra, and pain may be present in the perineum radiating along the urethra and back into the rectum. The urine is often hazy in the second glass, but may be fairly clear, especially if blockage of the ejaculatory ducts results in poor drainage. Epithelial and leucocytic shreds are common. If the urine is clear, the prostate and vesicles may be gently massaged; but the absence of enlargement or induration of the vesicles cannot be accepted as proof of the absence of infection. The fluid expressed by massage is caught in a specimen glass containing water. The normal secretion will diffuse through the water slowly as a bluish, opalescent haze. Purulent material is yellowish-white and will

plummet to the bottom of the glass because of the contained leucocytes. A cast of the vesicle may also be expressed. In the absence of pus macroscopically evident by the glass test, a wet slide of the secretion may be prepared for microscopic examination. Any specimen containing more than six leucocytes in a dry high-power field is suggestive of chronic vesiculitis and prostatitis. If no expression is obtained by massage, it may be necessary to dilate the urethra gradually over a period of weeks with curved metal sounds and repeat the examination. Instrumentation or massage in the presence of turbid urine is dangerous. Irrigation of the anterior and posterior portions of the urethra is not essential if the urine is passed immediately beforehand.

Treatment of Chronic Vesiculitis.

The treatment of chronic vesiculitis is long and tedious, and no patient can safely be promised a cure in less than two months. The main features are gradual dilatation of the urethra with curved metal sounds twice a week and the use of Kollmanns curved dilator if necessary. If the meatus is small, a meatotomy may have to be performed before the larger sizes of sound can be introduced. This will prevent any unnecessary pain brought about by stretching of the meatus. Massage of the prostate and vesicles is carried out two or three times a week, but not more often. The criteria of cure are absence of urethral discharge and shreds from the urine, and absence of purulent material from a series of at least three massage specimens.

Summary.

1. The high incidence of chronic vesiculitis in cases of non-gonococcal urethritis is illustrated.
2. Chronic vesiculitis as a cause of protracted urethral discharge is emphasized.
3. The diagnosis and treatment are briefly suggested.

Acknowledgements.

I wish to thank the Director-General of Medical Services for permission to publish this article and also Lieutenant-Colonel Norman M. Gibson, Adviser in Venereology, New South Wales L. of C. Area, and Commanding Officer of the Special Hospital at which these patients were examined.

References.

(1) W. I. B. Beveridge: "Isolation of Pleuropneumonia-like Organisms from the Male Urethra", THE MEDICAL JOURNAL OF AUSTRALIA, Volume II, 1943, page 279.
(2) W. I. B. Beveridge, A. D. Campbell, Patricia E. Lind: "Pleuropneumonia-like organisms in Cases of Non-Gonococcal Urethritis in Man and in Normal Females", THE MEDICAL JOURNAL OF AUSTRALIA, Volume I, 1946, page 179.
(3) D. J. Campbell: *British Journal of Venereal Diseases*, Volume XVIII, 1942, page 117.
(4) G. A. W. Johnston and J. McEwin: "Non-Gonococcal Urethritis: Consideration of Ætiology; Findings in Two Cases", THE MEDICAL JOURNAL OF AUSTRALIA, Volume I, 1945, page 369.
(5) A. J. King and D. I. Williams: "Intensive Treatment of Gonorrhœa and Non-Specific Urethritis with Sulphapyridine", *The Journal of the Royal Army Medical Corps*, August, 1941, page 72.
(6) J. S. Koll: "Diseases of the Male Urethra", 1918.
(7) G. Luys: "Textbook of Gonorrhœa", 1917.
(8) I. N. O. Price: "Non-Gonococcal Urethritis", *The British Journal of Venereal Diseases*, Volume XVIII, 1942, page 112.

Reviews.

CLINICAL PATHOLOGY.

THE fifth edition of Panton and Marrack's "Clinical Pathology", dated 1945, has followed soon after the ending of the war.[1] Its subject matter has been brought right up to date; general editing and revision have been made to the text of earlier editions and new chapters have been included. Added sections and subsections deal with sulphonamides and penicillin and the laboratory procedures associated with their use, the Rh factor, the copper sulphate specific gravity method of finding serum protein level and some other matters. The size of the book has been kept reasonable by, in general, the inclusion of only one or two reliable procedures for each investigation; in this way space has been made available for discussion on their relations to the diagnosis and treatment of disease.

The book covers most of the subjects suggested by the title in an adequate manner; hæmatology and transfusions, parasitology and bacteriology with immunity and serology, biochemistry of blood and body fluids, neoplasms and general histology are discussed. There are a number of coloured plates and clear-cut diagrams and drawings. In places the order of subsections could perhaps be improved, but an ample index allows subjects to be found readily. There is a tendency to use a full stop where a comma would be better. Occasional misprints can be found, and in one place 004 c.c. is printed for what obviously should be 400 cubic centimetres. These small points aside, this is a useful book for the laboratory, and it would make a strong appeal to the student, resident medical officer and general practitioner, and would serve as an introductory reference book for practical laboratory work and for correlating the tests to the clinical conditions. The book is of a handy size and the price is reasonable.

[1] "Clinical Pathology", by P. N. Panton, M.A., M.B., B.Chir. (Cantab.), J. R. Marrack, M.A., M.D. (Cantab.), and H. B. May, M.A., M.D. (Cantab.), M.R.C.P. (London); Fifth Edition; 1945. London: J. and A. Churchill Limited. 8¼" × 5¼", pp. 460. Price: 31s.

CLINICAL SURGERY.

OUT of a lifetime largely spent in the teaching of surgery comes a book on clinical surgery by Professor C. F. M. Saint, Professor of Surgery in the University of Cape Town.[1] In it the author gives a reasoned explanation of surgical note-taking. His endeavour is to instil into the student "a knowledge based upon, and the result of, reasoned thinking". In the general scheme of note-taking the student is taught that much may be learnt—much more than he usually learns—from the colour and expression of the face, from the condition of the parotid gland, from the eyes, from the tongue, from the teeth, from the tonsils, from the temperature and from the pulse. The clinical aspects of inflammation and of tumours and swellings in general, special features in abdominal emergencies, and special clinical features in regard to stomach and duodenum, are subject headings which give some idea of the layout of the book.

In the chapter on appendicitis, the author asks: How and why does appendiceal pain differ from other types of abdominal pain? What are the circumstances associated with appendiceal pain? What conclusion can be drawn from the severity, the situation and the character of the abdominal pain, and what inferences may be drawn from the change of situation and the change of character of the pain? These questions give an idea of how the junior student in clinical surgery is encouraged to think.

A chapter on scrotal swellings savours of the teaching of Rutherford Morrison.

The student in his early days of clinical surgery will find this book most helpful; it will keep his mind focused on those practical important clinical criteria which are so useful in identifying disease. He will find also that the book will not come amiss as an examination aid.

[1] "An Introduction to Clinical Surgery: Surgical Wherefores and Therefores", by Charles F. M. Saint, C.B.E., M.D., M.S., F.R.C.S. (Eng.), F.R.A.C.S.; 1945. Cape Town: The African Bookman. 8½" × 5½", pp. 303. Price: 25s.

ORTHOPÆDIC OPERATIONS.

"AN ANATOMICAL ATLAS OF ORTHOPÆDIC OPERATIONS", by L. S. Michaelis, contains some diagrams which would be helpful in a revision of surgical anatomy.[2] But the anatomist will miss the precision which he finds in his textbooks, and the surgeon will still wish to consult his more formal textbooks for a complete anatomical picture. For example, to expose the sciatic nerve, more than a skin incision is needed, and no indication is given as to the precise situation of the cervical rib. It is therefore difficult to know who could benefit from the atlas. The drawings are of a type constructed by the student in surgical anatomy proceeding to a higher degree in surgery. But such a student would benefit more from the construction of his own diagrams.

One cannot help feeling that many of the pages of beautiful art paper could have been put to better use than to show simple skin incisions and large areas of towelling.

[2] "Anatomical Atlas of Orthopædic Operations", by L. S. Michaelis, M.D.; 1946. London: William Heinemann (Medical Books) Limited. 9¾" × 7½", pp. 68, with many illustrations, some coloured. Price: 25s. net.

The Medical Journal of Australia

SATURDAY, JUNE 15, 1946.

All articles submitted for publication in this journal should be typed with double or treble spacing. Carbon copies should not be sent. Authors are requested to avoid the use of abbreviations and not to underline either words or phrases.

References to articles and books should be carefully checked. In a reference the following information should be given without abbreviation: initials of author, surname of author, full title of article, name of journal, volume, full date (month, day and year), number of the first page of the article. If a reference is made to an abstract of a paper, the name of the original journal, together with that of the journal in which the abstract has appeared, should be given with full date in each instance.

Authors who are not accustomed to preparing drawings or photographic prints for reproduction are invited to seek the advice of the Editor.

WOMEN IN MEDICINE.

No intelligent person in Australia nowadays raises the question of whether women should or should not study medicine, and, having satisfied their examiners, be admitted to university degrees and registered as legally qualified practitioners. Australian women are more fortunate than women in many other countries. No Australian woman who wishes to study medicine has to overcome official barriers because of her sex—there is no decree or enactment which requires that no more than a certain percentage of women shall be accepted for enrolment as undergraduate students at any Australian medical school. Theoretically there is no reason why more women than men should not be enrolled. This does not mean that no prejudice against women as doctors has ever been shown in this country. Australia, like every other country, enjoys its share of stupid people, and senior medical graduates, for example, will recall the fuss that was made in the early years of this century on the appointment of women as resident medical officers at certain large teaching hospitals. The present state of affairs is due to the enlightenment and foresight of those who created Australian medical schools and controlled them in their early days. In spite of, or perhaps because of, Australian conditions and also because it is never good to be complacent about anything, reference should be made to what is happening in other countries.

In a discussion last year on women in medicine, Florence de L. Lowther and Helen R. Downes[1] quote two important statements. The first is that for the past twenty years American medical colleges have limited their registration of women to approximately 5% of the total enrolment. The second is that English medical schools are admitting women to the extent of 20%. They are naturally concerned with conditions in the United States and hold that the question of the effectiveness of American women as practitioners (they use the word physicians) has reached the point where its clarification has become imperative. It is interesting to follow them in their vindication of American women doctors, for they do vindicate them. Apparently the chief argument in America against the training of women and their admission to the ranks of medical practitioners is that they marry and leave the profession and that it is sheer waste to spend large sums of money on their training. This is a very old argument and has been heard in every country. It has aroused Lowther and Downes to make an investigation to discover what use the women graduates of seven representative medical colleges in the eastern States have made of their training. They recall a statement made in opposition to the training of women doctors which we cannot forbear to mention. The statement was that 50% of the women in a certain class had dropped out. The person who made the statement forgot, or shall we say failed, to mention that there were only two women in the class. This is reminiscent of the type of author who tabulates his observation in all circumstances. Not infrequently have authors included in a tabulation one patient or case in a separate group. When the patient recovers or dies, we read that recovery or death occurs in a percentage that is set out as 100. The investigations of our two authors covered the careers of the women who in the eighteen or twenty years before 1940 graduated from the medical schools of Columbia, Cornell, Johns Hopkins, New York and Yale Universities, the University of Pennsylvania and the Women's Medical College of Pennsylvania. The total number of graduates was 1,240. Of these no less than 1,115 or 90% were engaged in full-time medical work. It is stated that (according to observations published by H. G. Weiskotten) the number 1,240 is equal to about one-third of the women who graduated in the United States in the past eighteen years and to one-sixth of the total number of women medical practitioners registered in the United States in 1942. Perhaps it should be explained that Lowther and Downes use the term "full-time medical work" to include not only medical practice, but also public health work, medical research, medical teaching and institutional medicine. Of the 1,240 graduates, 451 had married, and of the 451, the number engaged in full-time medical work was 368 or 82%. Again, of the 1,115 women in full-time medical work, 273 or 24% had taken sufficient "advanced training" to enable themselves to qualify as exclusive specialists. The numbers in each specialty are given. Pædiatrics heads the list with 64; psychiatry comes next with 42; internal medicine claimed 33; and obstetrics and gynæcology 28. Public health attracted 16 and pathology 12. Among the subjects whose adherents were below ten in number is general surgery with six.

The figures given by Lowther and Downes are interesting and show that women graduating in medicine in the United States give a good account of themselves. We should imagine that if figures for Australia could be produced they would support this conclusion of our American authors. It might, of course, be objected that if numbers in America were not restricted, more women might leave the ranks of medical practitioners on their graduation. But if they did, why should objections be raised? Men who enter on a course of medical study are not expected to cleave to medicine for the rest of their lives. It is a pity that Lowther and Downes were not able to discover how many men in the period reviewed had given up

[1] *The Journal of the American Medical Association*, October 13, 1945.

medicine to follow some other calling. Most medical men can recall some of their own student group who have not stuck to medicine as a life work. And in every large centre in Australia will be found women who conduct busy medical practices and some of them have numbers of children. Some types of medical work are said to be particularly suitable for women. That pædiatrics headed the list in the American figures is not surprising. We should have expected the combination of obstetrics and gynæcology to be more attractive, and pathology with only twelve adherents is also below expectations. However, this is a matter of opinion. The chief point is that women can claim and have every right to claim the whole of medicine as their field, and to this may be added the undoubted fact that women can be successful in what they undertake to do. It would be easy to stop here, but one sentence by Lowther and Downes must be quoted: ". . . if women as a group are to justify their claim to a place in the medical profession, they must do more than practice." This applies, of course, to men as well as to women. Lowther and Downes refer to the number of specialists among their total number of women and also to the fact that fifty of them hold professional appointments as some indication of a contribution made to medical science. This may be true. It is not necessary to state that specialist and professor may be followers of a dull routine and that a general practitioner who makes observations, takes a note of them and puts them on permanent record may set an example for everyone to follow. It sometimes seems a pity that women practitioners inaugurate a women's medical society, and many have been the questions of what these organizations do. There is something to be said for the view that women would make a better contribution to medical knowledge if they took a livelier interest in the scientific body to which all practitioners belong. This is for ourselves in Australia. For the women of America Lowther and Downes have done something to "clarify" the position. Australians would be happy to learn that the 5% embargo on American women medical students had been removed or at least modified in no niggardly fashion.

Current Comment.

LESIONS OF THE MOUTH AND IRON DEFICIENCY.

INTEREST in deficiency disease, always keen, has been heightened during the later war years because of the grosser manifestations of quantitative and qualitative deficiencies in diet in many parts of the world. Unhappily, too, we have been personally interested in the subject through the condition of many of our own returned ex-prisoners of war. It is becoming evident that strictly scientific observations are very difficult to make, because deficiencies are seldom single or uncomplicated, and we do not know how the whole question of balance of the accessory food substances is bound up with signs and symptoms that are supposed to be characteristic of specific deficiencies. William J. Darby, writing from the Vanderbilt University School of Medicine, has drawn attention to the possible importance of iron deficiency in the syndromes ascribed to lack of the vitamin *B* complex.[1] He points out the well-known Plummer-Vinson syndrome with its association of hypochromic anæmia, stomatitis and dysphagia, and remarks that the cause of the lesions of the mouth is obscure. Other writers have remarked that in similar states there may be signs of a riboflavin deficiency, and that the giving of riboflavin or the whole vitamin *B* complex may give relief. Waldenström is quoted as recording the cure of similar lesions of the mouth and other mucous membranes by the administration of iron without any other therapy. This writer apparently did not demonstrate that his patients failed to respond to vitamin therapy alone. Darby sets out to supply this information, and presents evidence that atrophic lingual papillæ, glossitis and angular fissures seen in iron deficiency anæmias are often due to the lack of iron alone and not to the concomitant vitamin deficiencies. He presents six case histories in detail, with photographs of the tongues of several patients, he notes that courses of vitamin therapy had not produced any improvement, and then he describes the progress made after iron alone was given. One case was that of a woman who suffered from fatigue, oral lesions and bouts of diarrhœa, who was thought to show the signs of "subclinical pellagra"; after a period of no improvement with thiamin, niacine and riboflavin, she was promptly relieved by iron. The condition of another woman who suffered from what seemed to be a mild Plummer-Vinson syndrome, improved at once on iron alone with no accessory dietetic factors.

On perusal of the details of these and other cases it is evident how difficult it is to assess evidence in this complicated subject, but it seems as if the author has shown that mucosal lesions occurring in deficiency states do not always clear up after the apparently appropriate vitamins are given, but may disappear and not recur if iron is given to make good a coexisting lack of hæmoglobin. Darby concludes that iron deficiency alone can be responsible for causing fissures at the labial commissures and superficial glossitis. He points out that in the cases that are noted not to respond to vitamin therapy an iron deficiency often coexists, though in these days of "cocktail" medicaments, in which iron and vitamins are all included, it might be surprising if a result was not obtained, albeit without the blessing of pure science. On the other hand, it might not be so surprising, as it has been pointed out that once we disturb the correct vitamin balance of the bodily economy we do not know whether we still further complicate matters, or at least replace one imbalance with another.

Darby has been stimulated by his observations to make a survey of the general adult population with the purpose of trying to correlate the presence of angular fissures of the mouth and glossitis with a chronic iron deficiency of mild degree. He proposes to publish these further observations, and claims that they show that in this connexion a mild iron deficiency is more significant than a high one. Pending fuller information, it would seem wise to regard this communication as at least evidence of the multiple nature of many of the deficiencies due to errors in diet or imperfections in absorption.

[1] *The Journal of the American Medical Association*, March 30, 1946.

THE TOXICITY OF THIOURACIL.

IT is beyond question that the "thio" drugs have provided a new and valuable weapon for use in the treatment of thyreotoxicosis. Just how extensive or how circumscribed are the indications for their use is still a matter for keen discussion. There has been wide acceptance of their worth in the pre-operative preparation of the thyreotoxic patient, as the toxic state can be controlled with great certainty, surgical intervention being made much safer. That thyreotoxicosis may be permanently relieved by the administration of thio drugs alone is less generally conceded, but experiences in this direction have recently been published in the pages of this journal.[1] The undoubted value of the new agents will inevitably lead to their being given to the majority of sufferers from toxic goitre. It will be necessary, therefore, to consider carefully the various dangers of "thio" drugs with the aim of minimizing the chance of serious consequences, and at the same time of assessing the

[1] THE MEDICAL JOURNAL OF AUSTRALIA, April 13, 1946, page 493.

risks in such a way as to place the method in its correct perspective. In the many reported experiences with "thio" drugs a variety of untoward complications has received mention, including persistent vomiting, diarrhœa, acute generalized synovitis, urticaria, œdema of legs, frequency of micturition, strangury, chemosis, photophobia, liver damage, enlargement of lymph glands, skin eruptions, and most dangerous of all, leucopenia going on to agranulocytosis. This imposing list might well cause the clinician to hesitate before using "thio" drugs, but to deny patients their benefits would be as wrong as to expose sufferers without proper precautions and controls. It is probable that, for various reasons, the earlier reports included an undue proportion of toxic effects. Thus Astwood's original communication describing only three cases included one in which the patient developed agranulocytosis.

At the present juncture the need for a critical review of the incidence of complications becomes obvious, and Francis D. Moore[1] has carried out a survey whose results merit careful examination. By collating figures from eleven clinics in the United States and from one in England, he has been able to assemble a series of 1,091 cases of thyreotoxicosis in which treatment with thiouracil was adopted, a number large enough to carry statistical weight. The investigation was concentrated on the most serious hazard, that of depression of leucocyte production, and less attention was paid to the minor ill effects. A white cell count below 3,000 per cubic millimetre was taken as constituting a leucopenia. The great majority of patients were treated over periods of from two to eight months, though the extremes ranged from two weeks to over two years. Although dosages varied, the limits were fairly narrow, and are shown not to affect the analytical results materially. In most instances 0·5 to 0·8 gramme of thiouracil per day was given for from three to seven weeks, and the amount was then reduced, the maintenance doses for long periods being of the order of 0·1 gramme to 0·05 gramme per day. In some of the cooperating clinics the drug was used solely as a pre-operative measure, and in others was given predominantly for treatment without surgery, while the remaining clinics tried both methods.

During the administration of thiouracil to this series of 1,091 patients, eight deaths occurred, of which five are considered to have been attributable directly to the drug. This corresponds to a total mortality of 0·7%, and a mortality of 0·5% due to thiouracil. In all five "drug" deaths the patients showed evidence of agranulocytosis. In his analysis of the total incidence of this condition the author uses the term "agranulocytosis" to mean depressed or absent neutrophile cells with the concomitant picture of infection, usually around the neck, throat and mouth, and does not include granulocytopenia not accompanied by "angina" or sepsis. Conforming to this definition, there were nineteen cases of agranulocytosis, representing 1·74% of the total. The great majority occurred between four and eight weeks from the commencement of therapy. There was one delayed case at thirty-six weeks. No quantitative relationship could be discovered between dosage and agranulocytosis. Some patients developed severe granulocyte depression after taking as little as 4·2 grammes of the drug, while others required up to 65·2 grammes. Rather than dosage, it appears that the time relationship is of greatest importance, and that the period of maximal danger is between the fourth and eighth weeks of treatment, at which stage the patient should be followed with extreme care. Nevertheless the overall spread of the complication extended from two to thirty-six weeks, and it is clear that throughout treatment reasonable clinical precautions must be observed. Vigilance must be increased when the patient has had a previous course of treatment, as there would seem to be some evidence to suggest that the patient may become sensitized. In four of the nineteen cases of agranulocytosis the patients had received treatment previously. Two patients developed agranulocytosis while being given thiouracil and sulphonamides simultaneously. The danger of combining two drugs which each depress leucocyte production has been pointed out by various writers. It is concluded that, while regular supervision and white cell counts should be carried out, leucopenia and agranulocytosis may supervene without any warning. All patients taking thiouracil should therefore be instructed to omit the drug and to report at once if any febrile illness occurs. Experience suggests that when agranulocytosis has developed, penicillin may succeed in protecting the patient against overwhelming infection until his white cells are restored.

"Drug fever" was noted in 4·9% of patients, and like leucopenia proved to be an early manifestation, all but two of the cases occurring in the first four weeks of treatment. One interesting case of fever (proved by later tests to have been due to the drug) occurred only five hours after the initial administration of thiouracil. This suggests a possible previous sensitization from some unknown source, a factor which might, in isolated cases, determine an early onset of leucopenia. Some of the other toxic manifestations are briefly reviewed, and include one case of platelet depression to a count of 32,000. In this patient the bleeding time was normal, but the clotting time was increased to 20·5 minutes. Within forty-eight hours of the suspension of thiouracil treatment the count returned to normal, and ten days later treatment was resumed without further effect on the platelets. Mild and occasionally profound myxœdema was observed, and Moore emphasizes the lowered tolerance of these patients to opiates, a factor which may lead to trouble from operative premedication.

A further study of the toxicity of thiouracil by *questionnaire* and statistical analysis has been published. W. J. Winkle *et alii*[1] investigated the results of the employment of thiouracil by 328 clinicians in 5,745 cases. It is not clear whether this total includes any of the 1,091 cases which form the basis of Moore's inquiry. The findings are substantially the same as those of Moore, although slightly different arbitrary standards were laid down in some instances. Winkle and his associates also emphasize the fact that most cases of leucocyte depression occur in the first four to eight weeks after treatment commences, as well as the danger that this complication may attend the resumption after an interval. They class as "leucopenia" any total white cell count below 4,000 per cubic millimetre where the differential count is relatively normal and the patient shows no subjective symptoms. The incidence of simple leucopenia was 4·4%, and bore no significant relationship to the dosage. The term "granulocytopenia" was applied when a total white cell count of under 4,000 per cubic millimetre with a lowered proportion of granular cells was associated with a sudden onset and acute symptoms such as fever and sore throat. One hundred and sixty-eight cases of granulocytopenia were reported, of which 142 were classified as of the "frankly malignant type". The 142 cases represented an incidence of 2·5% and led to 21 deaths, a mortality rate of 0·4% for the whole series of 5,745 cases. This mortality rate agrees with Moore's 0·5% under the heading of agranulocytosis. In Winkle's survey the most effective treatment was by massive doses of penicillin with repeated small blood transfusions. No satisfactory evidence was obtained of the efficacy of "Pentnucleotide" or similar preparations. Again the importance is stressed of instructing patients to discontinue the drug and to report at once any symptoms of fever, coryza or sore throat. The *questionnaire* concluded by posing to clinicians the query:

> In your opinion, is the incidence of toxic reactions greater than the incidence of bad results (including post-operative thyreoid crisis, injury to recurrent laryngeal nerve, parathyreoid tetany and other operative complications; uncontrolled thyreotoxicosis in patients in whom operation is inadvisable or contraindicated) seen with other methods of treatment?

The replies received, expressed as a percentage of the investigators, were as follows: less, 78·6%; greater, 4·2%; no opinion, 17·2%.

[1] *The Journal of the American Medical Association*, February 9, 1946, page 315.

[1] *The Journal of the American Medical Association*, February 9, 1946, page 343.

Abstracts from Medical Literature.

RADIOLOGY.

Röntgen Examination in Congenital Intestinal Obstructive Defects in Infants.

ANGUS K. WILSON (*American Journal of Roentgenology*, November, 1945) reports three cases illustrating congenital obstructing anomalies of the intestinal tract in newborn infants, and describes details of the technique of Röntgen examination. He believes that Röntgen examination, to be of value, should be made after the infant has been suspended for at least five and preferably ten minutes head down, in order to obtain maximum ascent of gas in the blind rectal pouch. When there is no anal opening, an opaque object should be held in apposition to the site of the dimple. If there is an anal pouch, an opaque medium should be injected into it. These measures will permit an accurate estimate of the depth of tissue between the anal membrane or perineal surface and the blind end of the rectal pouch. Röntgenograms made with the patient suspended head down in lateral projection are of greater value in estimating the thickness of tissue between the rectal pouch and the perineal skin surface, since the pelvic curve of the intestine gives an erroneously short distance between these points when viewed only in antero-posterior projection. However, the antero-posterior view is important to demonstrate possible deviation to left or right of the terminal end of the rectum.

Röntgenology of the Draining Bronchi from Tuberculous Cavities.

M. R. CAMIEL (*Radiology*, January, 1946) states that the radiological appearance of the lung in the area between a tuberculous cavity, or the site of a previous cavity, and the hilum is of special importance. This portion of the lung contains the regional bronchi and peribronchial vascular and lymphatic channels which drain the area of the parenchymal lesion toward the lung root. These draining bronchi are frequently involved in the tuberculous process, and the radiological appearance of the diseased bronchi may be sufficiently characteristic to permit some opinion as to their status. The course of a cavity is inextricably bound to the status of its draining bronchus. The mode of involvement of the bronchi is not exactly known. The simplest explanation, and one which fits in with the radiological appearance, is that the bronchi are involved by direct extension from the cavities they drain and by direct implantation from the infected material that is drained through them. The radiological appearance of the draining bronchi varies with the severity and duration of the underlying disease process. The bronchial disease may persist after the drained active parenchymal process has subsided. At an early stage, œdema or slight inflammation of the mucosa or other parts of the bronchial wall may be reflected in a simple increased visibility of the bronchial shadow. It is possible that this stage is non-specific and is merely an exudative response, either inflammatory or allergic, to the infected material bathing the mucosa. In any case, the rapid clearing of such a prominent bronchial shadow suggests either a non-specific process or minimal tuberculosis. At this stage complete reversibility of the lung shadows to normal may occur, or the resolution may be so great as to leave no detectable residual Röntgen markings. When the bronchial disease has progressed beyond the non-specific or incipient stage, it is associated with submucous tubercles and later with submucous extension and infiltration. The lesion may extend to the surface of the lumen, causing an elevation of the mucosa, or it may permeate into other parts of the bronchial wall with resultant bronchial thickening. At this stage visibility of the bronchial shadows is further increased. The walls of the bronchi are seen as two closely related, dense, parallel lines, separated by a central shadow caused by the lumen. This can frequently be recognized even when disease in the contiguous parenchyma tends to obscure the shadows. Tomography is of value in verifying the impression of bronchial disease. When the infection extends through the mucosa, ulceration results. Further growth above the surface causes irregular granulomatous lesions. These ulcerogranulomata represent an active stage of the disease, during which there is continued extension along the bronchial wall. It is to be expected that all layers of the bronchus will now be affected. The bronchial wall shadow will be denser, more irregular, and wider in diameter. Its lumen will be narrowed and irregular. A peribronchial reaction will be present in the contiguous pulmonary areas. This may occasionally be seen as a soft exudative shadow which lies between the cavity and the hilum. While in most instances the bronchial shadows will be identifiable, nevertheless, even in the absence of exact identification, the shadow between the cavity and the hilum must be attributed to the regional bronchial and peribronchial abnormality. If the ulcerogranuloma completely fills the bronchus, the occlusion may cause peripheral atelectasis. The presence of linear bronchial markings which extend into the lung field from a hilum should lead to the suspicion that a hidden cavity is being drained. In the presence of such shadows, a careful search, including tomographic study, should be made before the presence of a cavity is excluded.

Transient Successive Pulmonary Infiltrations (Löffler's Syndrome).

MAX EICHWALD AND W. V. SINGLETARY (*Radiology*, March, 1946) are of the opinion that the most characteristic and consistent findings associated with Löffler's syndrome are the transitory pulmonary areas of density found on repeated X-ray examinations of the chest. The first indication of the disease is often discovered on a routine chest film, but the picture is characteristic only if repeated examinations are made during the course of the disease. The areas of pulmonary density vary considerably in size and contour; they have no characteristic distribution and may be either unilateral or bilateral. The individual lesions are usually sharply demarcated, with irregular hazy borders. The dense area may be either homogeneous or mottled. The process may extend in various directions to involve the greater portion of one or more lobes, giving the appearance of consolidation. Similar shadows may appear in any part of the lungs, and such recurrences may extend over a period of several months. The initial lesion may be mistaken for tuberculosis, pneumonia, atypical pneumonitis, fungous infection *et cetera*, but the transitory character is the distinguishing feature. The significant laboratory findings are eosinophilia up to 69%, a slightly increased blood sedimentation rate and a normal or slightly elevated leucocyte count. There are many and varied agents which may be responsible for an allergic pulmonary response. This may be set in motion by a systemic allergen, as in bacterial or pollen sensitivity, or it may be a local manifestation, such as is seen in the presence of *Ascaris* larvæ in the lungs. The suggestion is made that the pulmonary process be termed a "pneumonid".

Treatment of Carcinoma of the Prostate by Irradiation.

ARBOR MUNGER (*American Journal of Roentgenology*, July, 1945) points out that the prognosis for cure of carcinoma of the prostate by irradiation is bad, owing to early metastatic invasion by perineural routes of the pelvis, sacrum and vertebræ. Less than 5% of subjects are suitable for early radical surgery when a clinical diagnosis is possible. The prognosis for alleviation of symptoms and extension of life has been improved by hormonal therapy. The importance of the serum and phosphatase level in the diagnosis of secondary deposits in bone is stressed. Whenever this level was appreciably raised, bone metastases were invariably found. In a few cases, however, metastases occurred without a rise in the acid phosphatase level. The author combines irradiation of the pelvis with irradiation of the testicles. The estimated tumour dose is 5,500*r*. Munger considers irradiation of the testes superior to surgical castration, as by the latter method only the gonadol depots of hormonal production are blocked and the extragonadal depots are of equal importance. The best results are gained from a combination of regional and testicular irradiation combined with œstrogen therapy.

Osteoid Osteoma of Bone.

HENRY L. JAFFE (*Radiology*, October, 1945) discusses the lesion designated as osteoid osteoma of bone, on the basis of a total experience covering 62 cases. He states that the condition has a predilection for males over females in the proportion of about two to one, and is found predominantly in older children, adolescents and young adults. Though it may affect almost any bone, it shows a strong preference for the lower limb bones and especially the femur and tibia. On the basis of the wider experience, it is reaffirmed that the lesion is highly distinctive and an entity *sui generis* in the pathology of bone disease, and that it is to be interpreted as a benign tumour of bone, albeit a peculiar one. When well advanced in its evolution, the lesion consists, in varying proportions, of osteoid trabeculæ of newly formed osseous tissue, and a substratum of

highly vascularized osteogenic connective tissue. The lesion does not usually exceed a centimetre in its greatest dimension, and, in a given affected bone, may lie within the spongiosa (perhaps at or near an articular surface), or against the inner surface of the bone cortex, or even actually within the cortex. An osteoid osteoma stands out from the surrounding osseous tissue as a sharply delimited nidus, but the total abnormal area in the affected bone may be very large, since there may be a perifocal zone of bone thickening or sclerosis extending for a considerable distance beyond the nidus. In interpreting the radiographic picture in a case of osteoid osteoma, one must remember that this picture has two aspects—the manifestation of the nidus or osteoid osteoma proper and that of the reaction which it has incited in the surrounding tissue. When this picture is characteristic, the affected bone shows the nidas as a small oval or roundish relatively radio-translucent or (less frequently) radio-opaque area, often surrounded by a more or less opaque or dense shadow reflecting the reactively thickened or otherwise altered zone of neighbouring bone. While persistent local pain and a sharply localized point of tenderness are useful indications in the diagnosis, it is the radiographic picture that constitutes the most valuable single diagnostic guide. Removal of the lesion is followed by prompt and lasting disappearance of the complaints.

PHYSICAL THERAPY.

Radium Treatment of Carcinoma of the Œsophagus.

M. LEDERMAN AND J. CLARKSON, of the Royal Cancer Hospital (*British Journal of Radiology*, January, 1945), point out that cancer of the œsophagus is reasonably radiosensitive, and yet the results of treatment leave much to be desired for two reasons. (i) The patients usually come for treatment in poor general health when the disease is advanced. (ii) The relative inaccessibility of the œsophagus and its proximity to important viscera make accurate planning and radical radiotherapeutic methods difficult. The radium methods available for treatment are: (i) external irradiation by teleradium, (ii) intracavitary treatment by radium bougie, (iii) implantation of radon seeds. Œsophageal carcinoma is classified in three types, (*a*) pharyngo-œsophageal, (*b*) thoraco-œsophageal, (*c*) cardio-œsophageal. Pharyngo-œsophageal tumours are eminently suitable for treatment by teleradium provided that they do not extend below the first dorsal vertebra, as then they become too deeply situated for efficient irradiation by the radium bomb and deep X-ray therapy is indicated instead. There are two methods of treatment of thoraco-œsophageal tumours: (*a*) by radium bougie, (*b*) by radon implantation. The insertion of a radium bougie into a small circumscribed tumour is effective, but this type of tumour is rarely seen. Stress is laid on the necessity of accurate localization of the tumour in both its length and the distance from the incisor teeth. The radium tubes used have a linear density of 10 milligrammes per centimetre. In a typical case three tubes are used having an overall length of 3·5 centimetres and a diameter of 1·5 centimetres, with filtration equivalent to one millimetre of platinum—that is, a total of 75 milligrammes of radium. A divided dose method is used. The bougie is inserted on alternate days. The total treatment time is sixty hours spread over fifteen days. Radon seeds can be implanted by insertion either through an œsophagoscope or after transpleural exposure of the œsophagus. The latter procedure seems seldom to be justified for palliative treatment. Cardio-œsophageal tumours are unsuitable for treatment by teleradium owing to the depth below the surface, and a radium bougie cannot deliver an adequate dose to the gastric portion of the tumour. An occasional tumour is implanted with radon seeds through the serous surface after laparotomy. A maximum of 60 millicuries is used. In combined X-ray and radium treatment, the authors suggest a plan of operation in which external X radiation is followed by the radium bougie before fibrosis has occurred. Fifteen patients are listed, of whom four died of intercurrent disease, two of them after three years, and there were three still living symptom-free after more than a year.

The Question of Ureteral Obstruction by Irradiation.

T. LEUCEUTIA (*American Journal of Roentgenology*, March, 1945) discusses the question of ureteral obstruction by irradiation. Hegger and Schreener (1926) had found at autopsy on patients dead of carcinoma, that 66% had gross pathological lesions of the urinary tract. Stress is laid on the important note which involvement of the upper urinary apparatus has on the prognosis of all malignant neoplasms situated in the pelvis. Involvement occurs most commonly in carcinoma of the cervix, but also in tumours of the bladder and prostate and of the ovaries. In a series of 32 carcinomata of the rectum, 13·2% of patients were found with unilateral hydronephrosis before any treatment had been given. During the last few years many writers have attributed the ureteral obstruction to the effects of the irradiation, especially in cases of carcinoma of the cervix. Most of the evidence brought forward in support of this was based upon autopsy findings in cases of carcinoma of the cervix treated by radium and external deep X-ray therapy, in which was present obvious thickening of the structures around the lower part of the ureter combined with bilateral hydronephrosis without any trace of carcinoma. Grave and Kickham, in 1937, investigated urologically and by post-mortem examination a series of 174 cases of carcinoma of the cervix, Stage III and Stage IV, and they found signs of ureteral obstruction in 123 or 10·7%. Of these, 46 carcinomata were in Stage III and 77 in Stage IV, indicating that the further the cancer had progressed, the more frequent were the urinary complications. The obstruction as a rule was encountered four to six centimetres above the bladder where the ureter ties beneath the broad ligament, and adjacent to the bladder. The following conclusions were reached. (i) Ureteral obstruction occurs so frequently in all malignant neoplasms situated in the pelvis that it must be considered as a natural sequence during the later stages of the disease. Many of the instances attributed in the literature to the effect of irradiation belong to this category, especially those in which no urological examination was made before treatment. (ii) Once a hydronephrosis or pyonephrosis is established, even complete eradication of the carcinoma does not prevent death from uræmia. On the whole there is insufficient proof that obstruction of the ureters is due to direct or indirect effects of irradiation as used in current practice for the treatment of malignant neoplasms of the pelvis. In fact, as newer evidence accumulates, the conviction grows that the opposite is true.

The Treatment of Hæmangioma.

G. E. PFAHLER (*Radiology*, February, 1946) records his experience in a series of 520 cases of hæmangioma. He has found no satisfactory treatment for the port-wine stain. X-rays produce atrophy and telangiectasis, as does radium; electrodesiccation causes scarring. On the whole Pfahler prefers radium, especially for lesions less than two centimetres in depth, as it can be applied without pain and retained by adhesive plaster without the necessity for strapping the patient. The strawberry and cavernous types of hæmangioma are suitable for radium treatment, as they are generally superficial and the depth dose can be kept small. The author uses plaques or surface applicators with one millimetre of platinum as filter, made to fit the lesion. The dose given is 50% of an erythema dose at each application, and this must be calculated for each arrangement of radium. In the deeper variety, after superficial irradiation, if a thick fibrous mass remains, radium needles are implanted for about two hours, ten-milligramme needles being used. The interval between treatments should be from six to twelve weeks. The earlier treatment is given, the better the result as a rule. Contra-indications are as follows. (i) Lesions in the region of the ovaries or testicles should not be treated by radium. (ii) Small lesions in the scalp can be destroyed more easily by electrocoagulation, excessive damage to hair follicles being thus avoided. (iii) If possible lesions over the epiphysis of fingers and toes should not be treated by irradiation. (iv) Radium treatment usually requires several visits over a year or more to obtain satisfactory results. When conditions are suitable, it may be better to use electrosurgery with suture of the wound. Treatment by electrodesiccation—that is, the use of a small high-frequency spark through air and not in contact with the lesion—is carried out under local anæsthesia. Indications are when the lesions are small or superficial and located where a small scar is not objectionable. This type of lesion can be successfully treated also by carbon dioxide snow. Electrosurgery in the treatment of cavernous hæmangioma consists in the use of the high-frequency bipolar cutting current, which should be adjusted so as to cut and not produce a flame. The wound can then be sutured. The author obtains primary healing and satisfactory results. He used this method on a large hæmangioma of the thigh in order to avoid possible ovarian damage. He points out that the thickened, warty and hairy types are not suitable for radium and are best treated by electrodesiccation.

XUM

British Medical Association News.

SCIENTIFIC.

A MEETING of the New South Wales Branch of the British Medical Association was held on April 16, 1946, at the Royal Alexandra Hospital for Children, Camperdown. The meeting took the form of a number of clinical demonstrations by members of the honorary medical staff of the hospital. Part of this report appeared in the issue of June 8, 1946.

Congenital Atelectasis.

DR. D. G. R. VICKERY showed a male child, aged four years, who had first been admitted to hospital on March 31, 1943, at the age of one year and ten months. He had been ill for six months with cough and sputum following measles and pneumonia. X-ray examination revealed the right lung to be completely atelectatic; bronchiectatic cavities were distributed through the whole of the lung, and the mediastinum was displaced to the right. There was no direct evidence of a foreign body. During the past three years the child had been in hospital four times with acute febrile pneumonic episodes which had responded to sulphonamides. Cough and sputum had persisted throughout the intervals between his admissions to hospital, though his general condition had been good. X-ray examination at the time of the meeting revealed that the right lung was completely atelectatic; it had a honeycomb appearance suggesting gross bronchiectasis. Atelectatic areas were also present at the base of the left lung.

Amyotonia Congenita (Oppenheim's Disease).

Dr. Vickery then showed a female child, aged three months, who had first been examined on March 5, 1946, suffering from inability to move her arms or legs; this had been first noticed at the age of six weeks. The child appeared to have been well during the first six weeks of life. Weakness of the cry had been noticed at the age of two weeks. The patients had four other children, aged sixteen, eleven, six and three years respectively; all these children were healthy. The mother had had no miscarriages. The patient was a full-term baby and her birth weight was seven pounds five ounces.

Dr. Vickery said that the child sucked well, but was seen to pant at times. At the age of six weeks her present state was fully developed. The clinical picture of *amyotonia congenita* was characterized by hypotonia of the muscles, which was congenital and increased in early infancy. The most pronounced feature was the lack of movements of the child's limbs; the toes and fingers, wrists and ankles moved a little, but the more proximal larger joints rarely moved. In the case under discussion the paresis involved the abdominal muscles and the intercostal muscles, and the child had typical diaphragmatic breathing, with little expansion out of the lower part of the thorax, but considerable forcing out of the abdominal wall during respiration. The facial muscles were not involved. The child's mental development appeared perfectly normal for her age. The knee jerks were absent, and the child lay with arms akimbo. The hypotaxia was so extreme that the child's limbs could be made to assume acrobatic positions without the slightest discomfort to her.

Dr. Vickery said that the diagnosis rested between Oppenheim's disease (*amyotonia congenita*) and Werdnig-Hoffmann's disease (infantile progressive spinal muscular atrophy). The latter disease was generally familial, and a history of other cases was recorded in the family tree; moreover, it usually began in the first year of life and slowly progressed, whereas Oppenheim's disease, after the first few months, showed a steady tendency to retrogress. Anatomical examination of subjects with either disease revealed degeneration and disappearance of the anterior horn cells of the spinal cord, and it was often impossible to differentiate between the two conditions. Many milder forms of *amyotonia congenita* occurred, in which the child made a slow but steady complete recovery. In some cases of the disease the diagnosis of rickets was made. Infantile anterior poliomyelitis might enter into the diagnosis as a possibility, but the symmetrical nature of the pauses was against this diagnosis. Bronchopneumonia from intercostal paralysis during the early stage of the disease was often the terminal feature. No specific treatment was known.

Osteomyelitis of the Acetabulum.

DR. C. H. WESLEY showed a male child, aged five years, who on November 3, 1945, had been found to have a temperature varying between 103° and 104° F. and a pulse rate of 140 to 160 per minute. On deep pressure over the left hip pain was elicited, and movement of the thigh caused pain. The child had been admitted to hospital on November 7, with a temperature of 102° F. The left hip was held with the thigh flexed and fully abducted, and the knee was flexed to a right angle and all movement was limited. A left inguinal gland was enlarged. Tenderness was present over the hip joint.

Treatment with intramuscular injections of penicillin, 15,000 units every three hours, was begun. On November 8 an X-ray examination of the hip revealed no bone or joint changes; treatment with sulphadiazine was begun, two tablets being given at once and one tablet every four hours. On November 9 the blood was found to be sterile. On November 13 penicillin treatment was suspended, 557,000 units having been given; the suspension was due to short supply. The child's temperature remained normal for two days. On November 20 further X-ray examination revealed no evidence of infection of the bone. On December 4 a progress X-ray examination revealed erosion of the ilium above the left acetabulum, with a small area of periostitis, and subarticular decalcification below the articular surface of the femoral head; the appearances suggested that early periostitis of the outer edge of the femoral shaft might be present. On December 8 penicillin treatment was recommenced, 15,000 units being given every three hours. On December 18 X-ray examination revealed a slight improvement in the child's condition. On January 1, 1946, X-ray examination still revealed a punctate area of erosion in the upper part of the acetabulum, but with no evidence of extension; some decalcification of the femoral head was present. The appearances suggested that healing was in progress. On January 3 penicillin therapy was suspended; 4,000,000 units had been given. Dr. Wesley said that at the time of the meeting the child walked fairly well; he had osteoarthritis of the left hip.

Tumour of the Axilla.

Dr. Wesley's next patient was a male child, aged sixteen months, who had been admitted to hospital on March 7, 1946, with a swelling under the left axilla; it had been present for two months, was increasing in size and was painless. On March 20 the tumour was excised. At operation the tumour was found to be hard, not encapsulated, and attached to the sheath of the axillary vessels. A pathological examination was made. The pathologist reported that the portion of tissue was firm and tough, and measured 4·5 inches by 1·5 inches by 0·5 inch. The cut surface, which was similar at various levels, glistened and contained yellow nodules intersected by pale, greyish-white bands. Microscopic examination showed the tissue to be composed largely of dense fibrous bands enclosing adipose tissue, but one of the more striking features was the presence of numerous large and small nerve bundles. This fascicular arrangement did not exist in all parts, and much of the nerve tissue merged imperceptibly with the collagenous fibres. In addition, throughout the tumour small areas were dispersed which were highly cellular and were composed, at least in part, of endothelial cells. Though invested by fat, the tumour was not encapsulated and extended to the edge of the block in transverse plane.

Dr. Wesley said that the tumour was a neurofibroangiolipoma. There was evidence in isolated foci of fairly pronounced activity, more particularly of the endothelial component. It was difficult to exclude entirely the possibility of metastasis, though local recurrence was much more likely.

Congenital Deformity of the Bowel.

DR. G. M. B. HALES showed a female baby, aged six days, who had been admitted to the hospital on March 16, 1946, having been born normally on March 10; she had vomited two days after birth and had continued to do so. The bowels were open, but the stools were small in amount and green in colour.

Examination showed the baby to be small and dehydrated. No abnormality was detected in the heart and chest, and the fontanelle was not depressed. Examination of the abdomen revealed that it was soft, that slight upper abdominal distension was present, and that peristaltic waves were visible. The provisional diagnosis of intermittent intestinal obstruction was made.

Operation was undertaken under ether anæsthesia. A right paramedian incision was made above the umbilicus. The stomach was distended and the small bowel was normal; the hepatic flexure was lying immediately below and adjacent to the pyloric antrum and attached firmly to it by peritoneal adhesions and a short anterior layer of great omentum

dragging down and kinking the pylorus. The omentum was cut between clamps and tied; the adhesions were freed, the lesser sac being exposed. Dr. Hales said that the condition of the child was then poor. The wound was closed in one layer by through-and-through silkworm sutures. The bowels acted while the child was on the operating table, when the kinking was relieved. She had recovered, had had no further vomiting, and the bowels were open. She was only slowly gaining in weight.

Congenital Dislocation of the Hip.

DR. R. L. STEPHEN first showed a female patient, who had been admitted to hospital on May 7, 1941, at the age of nineteen months, suffering from congenital dislocation of the left hip. X-ray examination revealed the acetabulum to be shallow. On May 20 the dislocation was reduced, and the legs were set in the frog position; the reduction was confirmed by means of X rays. On June 3, 1941, the patient was sent to the convalescent home at Collaroy. On September 10, 1941, another plaster cast was applied under general anæsthesia, and the procedure was repeated again on February 26, 1942, when X-ray examination showed the left hip joint to be in fair position. On May 13, 1942, the child was once more readmitted to hospital, and on July 9, 1942, X-ray examination revealed no further development of the acetabulum. On October 8, 1942, a shelf operation was performed, and on November 17, 1942, X-ray examination revealed a fair shelf. Extension was applied from October 8 to November 30, 1942. Walking exercises were instituted on February 23, 1942, and on March 5 the child was allowed to walk in crooked and elongated shoes. On April 22, 1943, the head of the femur was well in.

The child was readmitted to hospital on February 25, 1946; X-ray examination revealed pronounced dislocation of the left hip joint. On March 7 a shelf operation was performed, and on April 4 X-ray examination showed the femur to be displaced.

Dr. Stephen also showed a male child, aged seven months, who had been admitted to hospital on October 9, 1942; the mother had noticed congenital deformities. A plaster cast was applied, and on October 11 X-ray examination showed the hips in normal position. On February 1, 1946, the hips were manipulated and another plaster cast was applied; X-ray examination on February 7 showed the hips in normal position. Further manipulation and the application of yet another plaster cast were carried out on April 10, 1946.

Dr. Stephen finally showed a female patient, aged six years, suffering from congenital dislocation of both hips; she had received no treatment, and walked with a waddling gait. On April 18, 1945, skin extension was effected by the application of eight pounds' weight to each leg; X-ray examination revealed the femoral heads high above the acetabula. On May 24, under general anæsthesia, the hips were manipulated and a plaster cast was applied; X-ray examination revealed both femoral heads in position. On September 13 further manipulation was carried out and another plaster cast was applied, and X-ray examination showed the femoral heads to be low. The same procedure was repeated on February 7 and March 14, 1946, and on each occasion X-ray examination revealed that the femoral heads were rather low.

Scleroderma.

DR. J. BEGG showed a female patient, aged ten years, who eighteen months previously had first noticed an erythematous rash extending symmetrically over the inner aspect of both legs and thighs. It had a slight lilac tinge, and was accompanied in the surrounding areas of the skin by either an increase or a decrease in pigmentation. The skin changes were followed by what appeared to be chronic phlebitis of both saphenous veins. This resulted in cicatricial changes and the appearance of fibrous lumps along the distribution of the affected vessels. These small fibrous lumps later proved to be depositions of calcium salts in the subcutaneous tissues; they formed slowly, gradually increased in size, and finally made their way through the overlying skin. Dr. Begg said that that condition was known as *calcinosis cutis*.

In October, 1945, the right upper quadrant of the chest became involved, and by the end of that month the erythematous rash had extended to the dorsum of the right hand. The child had been practically symptomless during the period for which she had been under observation.

A number of investigations were carried out. X-ray examination revealed numerous areas of calcification in the veins of the legs; the superficial veins were chiefly involved, but the deeper veins were also affected. A blood count revealed that the erythrocytes numbered 3,860,000 and the leucocytes 5,900 per cubic millimetre; thrombocytes numbered 57,900 per cubic millimetre, and 10% of the leucocytes were eosinophile cells. The bleeding time was half a minute and the coagulation time was two minutes. The blood calcium content was 11·6 milligrammes per 100 millilitres of serum. The blood sedimentation rate was 12 millimetres in the first hour and 33 millimetres in the second hour. Examination of a biopsy specimen revealed that the pathological changes were restricted to the small radicles of the vessels, and consisted in cellular infiltration with subsequent thickening, hyalinization and calcification of the walls; the localization seemed to be perivascular. There was no clue to the ætiology; but it appeared that the disease was still active, slow in progression and inflammatory in nature. Dr. Begg said that the course was chronic, over many years; but the eventual outlook was poor. There was no specific treatment for the condition. Thyreoid extract had been given, but no improvement was noticed.

NOTICE.

THE General Secretary of the Federal Council of the British Medical Association in Australia has announced that the following medical practitioners have been released from full-time duty with His Majesty's Forces and have resumed civil practice as from the dates mentioned:

Dr. G. H. H. Gall, 249, Bay Street, Brighton-le-Sands, New South Wales (May 6, 1946).
Dr. Hales Wilson, "Labrador", 217, Macquarie Street, Sydney (June 1, 1946).
Dr. G. L. Bennett, Freeling, South Australia.
Dr. Noel Bonnin, 188, Cross Roads, Malvern, South Australia.
Dr. J. R. Cornish, 197, North Terrace, Adelaide, South Australia.
Dr. G. M. Hone, 178, North Terrace, Adelaide, South Australia.
Dr. W. R. C. Morris, Woodville, South Australia.
Dr. F. B. Turner, 115, Anzac Highway, Grassmere, South Australia.

NEW SOUTH WALES BRANCH NEWS.

THE following book, pamphlets *et cetera* have been added to the library of the New South Wales Branch during the period July 1, 1945, to April 30, 1946.

Abraham, James Johnston: "Lettsom, his Life, Times, Friends and Descendants", 1933.
Abt, Isaac I.: "Yearbook of Pediatrics", 1934 and 1945.
Australia: Report of the Commonwealth Council for National Fitness, October, 1945, Eighth Session.
Department of Health: "Pre-School Centres in Australia", by J. H. L. Cumpston and C. M. Heinig, 1944; "The Health Record", by F. M. Clements and M. MacPherson, 1945.
Department of Labour and National Service: Industrial Welfare Division, Bulletin No. 1, "Industrial Lighting", 1945; Bulletin No. 4, "Planning Hours of Work", 1945; Bulletin No. 5, "Amenities in Wartime Factories", 1945; Bulletin No. 8, "Factory Planning", Part 1, 1945. Industrial Welfare Division, Manual No. 1, "Planning Cafeterias for Australian Industry", Part 1, 1944; Bulletin No. 2, "Standard Recipes for Industrial Cafeterias", 1945. Industrial Welfare Division, Technical Report No. 2, "Tetryl Dermatitis", by H. M. L. Murray and others, 1944. Industrial Welfare Division, Leaflet No. 2, "Oil Dermatitis", 1944; Leaflet No. 5, "The Clothing Trades", 1944. War Housing Division Bulletins Nos. 3-6, 1945.
Bailey, Hamilton: "Surgery of Modern Warfare", six volumes, Third Edition, 1944.
Barclay, Alfred E., and others: "The Fœtal Circulation and Cardiovascular System and the Changes that they Undergo at Birth", 1944.
Best, Charles H., and Taylor, Norman B.: "Physiological Basis of Medical Practice", Fourth Edition, 1945.
Bothman, Louis, and others: "1945 Yearbook of the Eye, Ear, Nose and Throat".
Bourne, Aleck W., and Williams, L. H.: "Recent Advances in Obstetrics and Gynæcology", Sixth Edition, 1945.
Boyd, William: "Pathology of Internal Diseases", Fourth Edition, 1944.
Brain, W. R., and Strauss, E. B.: "Recent Advances in Neurology and Neuropsychiatry", Fifth Edition, 1945.
Brain, W. R.: "Diseases of the Nervous System", Second Edition, 1945.
British Empire Cancer Campaign: Twenty-Second Annual Report, 1945.

XUM

British Encyclopædia of Medical Practice: "Medical Progress", 1945; Cumulative Supplement, 1945.
Brittain, H. A.: "Architectural Principles in Arthrodesis", 1942.
British Pharmacopœia: Seventh Addendum to the British Pharmacopœia, 1932 (1945).
Brown, William: "Psychology and Psychotherapy", Fifth Edition, 1944.
Brieger, E. M.: "The Papworth Families", 1944.
Chesterman, Judson T.: "Treatment of Acute Intestinal Obstruction", 1945.
Clapesattle, H. B.: "The Doctors Mayo", 1941.
Clark, K. C.: "Positioning in Radiography", Fourth Edition, 1945.
Colsen, Kurt: "Fractures and Fracture Treatment in Practice", Second Edition, 1944.
Cope, Zachary: "Early Diagnosis of the Acute Abdomen", 1929; "Surgical Aspects of Dysentery", 1920.
Craig, Charles F.: "Etiology, Diagnosis and Treatment of Amebiasis", 1944.
Cullen, Dr.: "Clinical Lectures", 1772-1773.
Currie, J. R., and Mearns, A. G.: "Manual of Public Health Hygiene", Second Edition, 1945.
Dandy, Walter E.: "Intracranial Arterial Aneurysms", 1945.
Darling, H. C. R.: "Elementary Hygiene for Nurses", Eighth Edition, 1944.
De Schweinitz, Karl: "Growing Up", 1944.
Dible, J. H., and Davie, T. B.: "Pathology", 1939.
Dick, George F., and others: "1945 Yearbook of General Medicine".
Dobbin, Leonard and Mackenzie, John E.: "Salts and Their Reactions", Seventh Edition, 1944.
Dorland, W. A. Newman: American Illustrated Medical Dictionary, Twentieth Edition, 1944.
Dowson-Weisskopf, A. B.: "Industrial Nursing", 1944.
Ellis, Havelock: "Psychology of Sex", 1944.
Evans, C. L.: "Starling's Principles of Human Physiology", Ninth Edition, 1945.
Feldman, Maurice: "Clinical Roentgenology of the Digestive Tract", Second Edition, 1945.
Files, Glenn W.: "Medical Radiographic Technic", 1943.
Fishbein, Morris: "Medical Uses of Soap: A Symposium", 1945.
Fisher, R. A.: "Statistical Methods for Research Workers", Ninth Edition, 1944.
Foote, R. Rowden: "Varicose Veins, Hæmorrhoids and Other Conditions: Their Treatment by Injection", 1944.
French, Herbert: "Index of Differential Diagnosis of Main Symptoms", Sixth Edition, 1945.
Fulton, John F.: "Physiology of the Nervous System", Second Edition, 1945.
Furneaux: "Furneaux's Human Physiology", revised by W. A. M. Smart, 1940.
Gabriel, William B.: "Principles and Practice of Rectal Surgery", Third Edition, 1945.
Geoffroy-Saint-Hilaire, M.: *"Philosophie anatomique des monstruosities humaines"*, 1822.
Gelfand, M.: "The Sick African", 1944.
Gibberd, G. F.: "Short Textbook of Midwifery", Third Edition, 1943.
Grinker, Roy R.: "Neurology", Third Edition, 1945.
Glaister, John: "Medical Jurisprudence and Toxicology", Seventh Edition, 1942.
Glasser, Otto, and others: "Physical Foundations of Radiology", 1944.
Goldring, William, and Chasis, Herbert: "Hypertension and Hypertensive Disease", 1944.
Goldstein, Max A.: "Acoustic Method for the Training of the Deaf and Hard-of-Hearing Child", 1939; "Problems of the Deaf", 1933.
Gordon, R. G.: "A Survey of Child Psychiatry", 1939.
Graham, Evarts A.: "1945 Yearbook of General Surgery."
Grant, J. C. G.: "Method of Anatomy, Descriptive and Deductive", Third Edition, 1944.
Great Britain—
Medical Research Council, Industrial Health Research Board: Report No. 88, "Study of Women on War Work in Four Factories", by S. Wyatt, 1945; Pamphlet No. 3, "Why is She Away?" 1945.
Medical Research Council, Special Reports: No. 248, "Provisional Classification of Diseases and Injuries for Use in Compiling Morbidity Statistics", 1944.
Medical Research Council, War Memos: No. 14, "Nutritive Value of Wartime Foods", 1945; No. 16, "Food Yeast: A Survey of its Nutritive Value", 1945; No. 15, "Sterilization, Use and Care of Syringes", 1945.
Ministry of Home Security: "Atlas of Air-Raid Injuries", 1944.
Griffith, Edward F.: "The Road to Maturity", 1944.
Hamblen, E. C.: "Endocrinology of Woman", 1945.
Henderson, D. K., and Gillespie, R. D.: "Textbook of Psychiatry", Sixth Edition, 1944.
Henry, Arnold K.: "Extensile Exposure Applied to Limb Surgery", 1945.
Henry, Richard J.: "Mode of Action of Sulfonamides", 1944.
Hicks, C. Stanton: "Soil, Food and Life", 1945.
Hiller, L. 'a: "Surgery Through the Ages", 1944.
Hotchkiss, Robert S.: "Fertility in Men", 1945.
Houghton, Marjorie, and Harding, M.: "Aids to Theatre Technique", 1944.
Howes, Edith: "The Cradle Ship", Fourteenth Edition, 1939.
Hutchison, Robert, and Moncrieff, A.: "Lectures on Diseases of Children", Ninth Edition, 1945.
Illingworth, C. F. W.: "Textbook of Surgical Treatment", Second Edition, 1944.
Jackson, Alice M., and Armstrong, K. F.: "Teaching in Schools of Nursing", 1943.
James, Norman R.: "Regional Analgesia for Intra-Abdominal Surgery", 1943.
Jameson, W. W., and Parkinson, G. S.: "Synopsis of Hygiene", Eighth Edition, 1944.
Kampmeier, Rudolph H.: "Essentials of Syphilology", 1943.
Kanner, Leo: "Child Psychiatry", 1935.
Kenny, P. J. L.: "Guide to Virile Manhood", Fifth Edition, 1942, and Sixth Edition, 1943.
Kerr, H. D., and Gillies, C. L.: "The Urinary Tract", 1944.
Kettle, E. H.: "Kettle's Pathology of Tumours", by W. G. Barnard and A. H. T. Robb-Smith, Third Edition, 1945.
King, E. S. J.: "Localized Rarefying Conditions of Bone", 1935.
Kovács, Richard: "1945 Yearbook of Physical Medicine."
Levine, Samuel A.: "Clinical Heart Disease", Third Edition, 1945.
Lindner, Robert M.: "Rebel Without a Cause", 1944.
Louis, P. Ch. A.: *"Recherches anatomico-pathologiques sur la phthisie"*, 1825.
Lowsley, Oswald S.: "1945 Yearbook of Urology".
Lyle, Donald J.: "Neuro-Ophthalmology", 1945.
Mackie, T. J., and McCartney, J. E.: "Handbook of Practical Bacteriology", Seventh Edition, 1945.
McLachlan, A. E. W.: "Handbook of Diagnosis and Treatment of Venereal Diseases", 1944.
Major, Ralph H.: "Physical Diagnosis", Third Edition, 1945.
Meakins, J. C.: "Practice of Medicine", Fourth Edition, 1944.
Medical Annual, 1945.
Miles, W. Ernest: "Rectal Surgery", Second Edition, 1944.
Molesworth, H. W. L.: "Regional Analgesia", 1944.
Moll, Aristides A.: "Æsculapius in Latin America", 1944.
Monrad-Krohn, G. H.: "Clinical Examination of the Nervous System", Seventh Edition, 1938.
Morris, Hugh: "Medical Electricity for Massage Students", Second Edition, 1943.
National Research Council, Division of Medical Sciences: "Fundamentals of Anesthesia", Second Edition, 1944.
Ormsby, Oliver S., and Montgomery, Hamilton: "Diseases of the Skin", Sixth Edition, 1943.
Osborne, Stafford L., and Holmquest, H. J.: "Technic of Electrotherapy and its Physical and Physiological Basis", 1944.
Page, Irvine H.: "Hypertension", 1944.
Pratt, Charles A.: "Essentials of Chiropody", 1945.
Pullen, Roscoe: "Medical Diagnosis", 1944.
Purves-Stewart and Evans, A.: "Nerve Injuries and Their Treatment", Second Edition, 1919.
Queen Charlotte Maternity Hospital: Clinical Report for 1944.
R.A.A.F.: "Malaria Handbook for Medical Officers", R.A.A.F. Publication No. 510, 1945.
Radzinowicz, L., and Turner, J. W. C.: "Mental Abnormality and Crime", 1944.
Rich, Arnold R.: "The Pathogenesis of Tuberculosis", 1944.
Robb, Douglas: "Medicine and Health in New Zealand", 1940.
Roberts, J. A. Fraser: "Introduction to Medical Genetics", 1940.
Ross, T. A.: "The Common Neuroses", Second Edition, 1937.
Rowbotham, G. F.: "Acute Injuries of the Head", 1945.
Russ, Sidney, and others: "Physics in Medical Radiology", 1928.
Scherf, David, and Boyd, Linn J.: "Clinical Electrocardiography", Second Edition, 1945.
Scholes, F. V. G.: "Nursing in Acute Infectious Diseases", Second Edition, 1945.
Sears, W. Gordon: "Medicine for Nurses", Fourth Edition, 1945.
Shaw, Wilfred: "Textbook of Gynæcology". Fourth Edition, 1945.
Siegler, Samuel L.: "Fertility in Women", 1944.
Spiegel, E. A., and Sommer, I.: "Neurology of the Eye, Ear, Nose and Throat", 1944.
Stern, Rudolf: "Trauma in Internal Diseases", 1945.
Stone, J. E.: "Hospital Organization and Management", Third Edition, 1944.

Thompson, Rezin: "The Medical Adviser", Twentieth Edition, 1884.
Tidy, Henry L.: "Synopsis of Medicine", Eighth Edition, 1945.
Trail, Richard R.: "Chest Examination", 1943, and Second Edition, 1945.
Trail, Richard R., and others: "Mass Miniature Radiography", 1943.
Trotter, Wilfred: "Collected Papers of Wilfred Trotter, F.R.S.", 1942.
United States Department of Labor, Women's Bureau: "Outlook for Women in Occupations in the Medical Services: Women Physicians and X-Ray Technicians", 1945.
United States Information Library: "Medical Education in the United States and Canada", 1943-1944.
United States Office of War Information: "Convalescent Medicine", 1945; "Symposium on Recent Advances in Surgery", 1944; "Symposium on Recent Advances in Medicine", 1944; "Symposium on Fractures and Dislocations", 1945; "Symposium on Neuropsychiatric Diseases", 1945; "Tuberculosis", Parts 1 and 2, 1945.
University of Sydney: Calendar Supplement for 1945-1946.
Van Rooyen, C. E., and Rhodes, A. J.: "Virus Diseases of Man", 1940.
Walzer, R.: "Galen on Medical Experience", 1944.
Wakeley, C. P. G.: "Hey Groves' Synopsis of Surgery", Twelfth Edition, 1945.
Wartenberg, Robert: "Examination of Reflexes", 1945.
Waters, C. A., and Kaplan, I.: "1945 Yearbook of Radiology."
Weil, Arthur: "Textbook of Neuropathology", Second Edition, 1945.
Wilson, C. W.: "Radium Therapy", 1945.
Wisconsin General Hospital: "Statistical Reports, Department of Anesthesia", 1941-1944 inclusive.
Wolf, Stewart, and Wolff, Harold G.: "Human Gastric Function", 1944.
Wright, Almroth E.: "Studies in Immunisation", Second Series, 1944.

Periodicals—

Acta Tropica, Volume I, 1946.
Anesthesiology, Volume I, 1940.
Blood, Volume I, 1946.
Clinics, Volume I, 1942.
Proceedings of the Nutrition Society of London, Volume I, 1944.
Occupational Medicine, Volume I, 1946.
Quarterly Review of Psychiatry and Neurology, Volume I, 1946.

Naval, Military and Air Force.

APPOINTMENTS.

THE undermentioned appointments, changes *et cetera* have been promulgated in the *Commonwealth of Australia Gazette*, Number 100, of May 30, 1946.

NAVAL FORCES OF THE COMMONWEALTH.

Permanent Naval Forces of the Commonwealth (Sea-Going Forces).

Termination of Appointment. — Temporary Surgeon Lieutenant (D) George Williams Vincent, 4th April, 1946.

Citizen Naval Forces of the Commonwealth.

Royal Australian Naval Reserve.

Termination of Appointment.—Surgeon Lieutenant Gordon Seymour Murray, 16th April, 1946.

Resignation.—The resignation of Cedric Swanton of his appointment in the honorary rank of Surgeon Lieutenant-Commander is accepted, dated 26th April, 1946.

AUSTRALIAN MILITARY FORCES.

Australian Army Medical Corps.

NX203622 Captain J. G. O'Neill is removed from the Regimental Supernumerary List, 28th March, 1946.

The following officers are appointed from the Reserve of Officers (Australian Army Medical Corps) and to be Captains, 20th March, 1946: Honorary Captains NX502740 D. K. Lehmann and NX502739 C. Radeski.

No. 112 (Brisbane) Military Hospital.—NX207261 Captain T. R. M. Furber is transferred from Australian Army Medical Corps (Medical) Reinforcements with regimental seniority as from date of transfer, 15th August, 1945.

2nd Australian Field Ambulance (Australian Imperial Force).—NX204015 Captain G. B. Loveridge is placed upon the Regimental Supernumerary List, 2nd March, 1946.

VX88154 Captain A. C. Bell is seconded, 9th January, 1946.

NX111987 Lieutenant-Colonel W. A. Hugh-Smith is placed upon the Regimental Supernumerary List, 15th March, 1946.

VX94813 Captain P. E. Dane is removed from the Regimental Supernumerary List, 12th March, 1946.

The following officers relinquish the rank of Temporary Colonel and are transferred to the Reserve of Officers (Australian Army Medical Corps) with the rank of Lieutenant-Colonel and are granted the rank of Honorary Colonel: Lieutenant-Colonels (Temporary Colonels) NX70413 N. D. Barton, C.B.E., E.D., 21st February, 1946, and SX2817 H. M. Fisher, 15th March, 1946.

NX114319 Lieutenant-Colonel (Temporary Colonel) S. C. M. Hiatt relinquishes the rank of Temporary Colonel and is transferred to the Reserve of Officers (Australian Army Medical Corps), 9th March, 1946.

VX108422 Major (Temporary Lieutenant-Colonel) R. J. Farnbach relinquishes the rank of Temporary Lieutenant-Colonel and is transferred to the Reserve of Officers (Australian Army Medical Corps), 14th March, 1946.

The following officers are transferred to the Reserve of Officers (Australian Army Medical Corps): Lieutenant-Colonels SX25140 E. F. Gartrell, 21st February, 1946, QX22478 E. A. F. McDonald, 9th February, 1946, NX70332 E. H. Goulston, 26th February, 1946, and WX1522 R. R. Anderson, M.C., 16th March, 1946.

To be Lieutenant-Colonels, 27th September, 1945.—Majors (Temporary Lieutenant-Colonels) NX111987 W. A. Hugh-Smith and NX70332 E. H. Goulston.

QX46759 Lieutenant-Colonel C. E. S. Jackson relinquishes command of 102nd Australian Convalescent Depot and is appointed to command No. 102 (Holland Park) Military Hospital, 29th March, 1946.

WX33057 Lieutenant-Colonel (Temporary Colonel) E. J. T. Thompson, M.C., E.D., relinquishes the appointment of Assistant Director of Medical Services Headquarters, 11th Australian Division (Australian Imperial Force), and retains the appointment of Deputy Director of Medical Services Headquarters, 8th Military District, 25th March, 1946.

VX48626 Lieutenant-Colonel A. C. Mendelsohn relinquishes command of 2nd Australian Field Ambulance, 21st March, 1946.

QX44608 Lieutenant-Colonel D. F. Millar relinquishes command of No. 102 (Holland Park) Military Hospital and is placed upon the Regimental Supernumerary List, 29th March, 1946.

SX31012 Lieutenant-Colonel (Temporary Colonel) F. L. Wall, M.C., relinquishes the appointment of Deputy Director of Medical Services Headquarters, 4th Military District, and is placed upon the Regimental Supernumerary List, 15th March, 1946.

NX116465 Lieutenant-Colonel P. L. Jobson relinquishes command of 19th Australian Field Ambulance and is placed upon the Regimental Supernumerary List, 15th March, 1946.

VX94146 Captain D. C. Cowling ceases to be seconded, 2nd March, 1946.

The following officers are placed upon the Regimental Supernumerary List: VX165 Lieutenant-Colonel S. W. Williams, 29th March, 1946, QX40818 Major T. R. Biggs, 10th April, 1946, and VX13622 Major (Temporary Lieutenant-Colonel) A. D. Matheson, 21st March, 1946.

NX453 Lieutenant-Colonel (Temporary Colonel) J. S. Crakanthorp relinquishes the rank of Temporary Colonel and is transferred to the Reserve of Officers (Australian Army Medical Corps) with the rank of Lieutenant-Colonel and is granted the rank of Honorary Colonel, 5th March, 1946.

The following officers are transferred to the Reserve of Officers (Australian Army Medical Corps): Lieutenant-Colonels NX76224 C. E. A. Cook, C.B.E., and S2675 J. S. Verco, 22nd March, 1946, and NX35025 E. F. Thomson, 8th March, 1946.

SX34523 Lieutenant-Colonel C. Yeatman, O.B.E., is appointed from the Reserve of Officers (Australian Army Medical Corps), and is appointed to command 130th Australian General Hospital, 14th January, 1946.

Inter-Service Medical Wing Demobilization Centres (Australian Military Forces Component).—WX37187 Captain W. P. Harris is placed upon the Regimental Supernumerary List, 28th February, 1946.

The following officers are appointed from the Reserve of Officers (Australian Army Medical Corps), and to be captains,

20th March, 1946: Honorary Captains SX34531 R. Hunter, SX34532 M. K. Smith and SX34533 R. S. Colton.

NX34727 Captain W. R. Davison is transferred to Australian Army Medical Corps (Miscellaneous), 4th October, 1945.

TX2107 Lieutenant-Colonel R. M. W. Webster, M.C., E.D., is transferred to the Reserve of Officers (Australian Army Medical Corps), 21st March, 1946.

Reserve of Officers.

Australian Army Medical Corps.

The undermentioned officers are transferred to the Reserve of Officers with effect from the dates indicated, and, where applicable, cease to be seconded. Officers holding temporary rank relinquish such temporary rank on the date of transfer to the Reserve of Officers:

2nd/11th Australian General Hospital.—NX132265 Major V. J. McGovern, 15th March, 1946.

101st Australian General Hospital (Australian Imperial Force).—NX115312 Captain D. Varvaressos, 16th March, 1946.

No. 102 (Holland Park) Military Hospital.—Q142671 Major P. B. English, 16th February, 1946.

No. 115 (Heidelberg) Military Hospital.—VX112273 Captain W. E. Spring, 16th March, 1946.

103rd Australian Convalescent Depot.—NX130934 Captain C. E. Brake, 16th March, 1946.

110th Australian Casualty Clearing Station (Australian Imperial Force).—QX45115 Captain M. R. Lee, 19th March, 1946.

2nd/2nd Australian Hospital Ship.—WX31110 Captain P. W. Atkins, 22nd March, 1946.

Inter-Service Medical Wing Demobilization Centres (Australian Military Forces Component).—TX6339 Major G. R. Beattie, 19th March, 1946, Captains QX46017 K. J. Whitehead, 16th March, 1946, and QX59771 C. B. R. Mann, 19th February, 1946.

5th Australian Camp Hospital.—QX62579 Captain (Temporary Major) C. J. Constable, 19th February, 1946.

Majors NX77381 A. E. McGuinness, M.C., and VX112191 D. L. Yoffa, 9th March, 1946, Captains V147212 S. K. Crownson, 14th March, 1946, and WF90282 H. B. Kershaw, 13th March, 1946.

No. 113th (Concord) Military Hospital.—VX138670 Major K. F. O'Donnell and NX147119 Captain R. J. Kiely, 9th March, 1946, and NX117615 Captain G. Fitzgerald, 14th March, 1946.

118th Australian General Hospital (Australian Imperial Force).—Majors VX117265 R. D. Smith and VX108169 N. P. Long, 13th March, 1946.

120th Australian Special Hospital.—NX142879 Captain R. H. B. Millar, 9th March, 1946.

20th Australian Camp Hospital.—V148254 Captain K. H. Macfarlane, 9th March, 1946.

101st Australian Convalescent Depot (Australian Imperial Force).—VX108489 Major J. M. Downing, 15th March, 1946.

103rd Australian Convalescent Depot.—N392929 Captain A. C. Saunders, 12th March, 1946.

104th Australian Casualty Clearing Station (Australian Imperial Force).—WX28703 Captain E. J. Haberfeld, 16th March, 1946.

111th Australian Casualty Clearing Station (Australian Imperial Force).—SX26403 Captain A. McQ. Thomson, 13th March, 1946.

101st Australian Mobile Bacteriological Laboratory (Australian Imperial Force).—QX40889 Major W. J. H. Alexander, 13th March, 1946.

Inter-Service Medical Wing Demobilization Centres (Australian Military Forces Component).—NX122148 Major I. W. Holt and VX91344 Captain J. Akerman, 9th March, 1946, QX48801 Major P. S. Woodruff, 13th March, 1946, and SX15734 Captain R. M. Hains, 1st November, 1945.

Captains TX2185 T. G. H. Hogg, 9th March, 1946, and NX76180 T. Le Gay-Brereton, 5th December, 1945.

The undermentioned officers are transferred to the Reserve of Officers with effect from the dates indicated, and, where applicable, cease to be seconded. Officers holding temporary rank relinquish such temporary rank on the date of transfer to the Reserve of Officers and are granted from such date honorary rank on the Reserve of Officers equivalent to the temporary rank relinquished:

109th Australian Casualty Clearing Station (Australian Imperial Force).—NX102542 Captain (Temporary Major) H. M. J. Windsor, 12th March, 1946.

22nd Australian Camp Hospital.—QX60942 Captain (Temporary Major) P. J. Monohan, 2nd March, 1946.

Retired List.

Australian Army Medical Corps.

The undermentioned officers are placed upon the Retired List on the dates indicated, and, where applicable, cease to be seconded. Officers holding temporary rank relinquish such temporary rank on the date of placement upon the Retired List:

No. 114 (Goulburn) Military Hospital.—N393354 Captain N. P. Protopopoff, 16th March, 1946.

No. 115 (Heidelberg) Military Hospital.—N393379 Major H. A. Sweetapple, 20th March, 1946.

1st Australian Orthopædic Hospital.—NX150000 Major H. R. H. Beattie, 9th March, 1946.

Reserve Citizen Military Forces.

Australian Army Medical Corps.

2nd Military District.—The undermentioned officers are retired: Honorary Captain M. E. H. Elliott, 26th September, 1945, and Captain C. O. Hellstrom, 17th September, 1945.

3rd Military District.—Honorary Captain H. J. Cahill is retired, 24th January, 1946.

5th Military District.—Honorary Lieutenant T. F. Christie, Honorary Captains N. S. Williams, K. F. Abernethy and E. W. Byron are retired, 15th October, 1945.

4th Military District.—Honorary Colonel H. M. Fisher is appointed Deputy Director of Medical Services Headquarters, 4th Military District (part-time duty), 18th March, 1946.

ROYAL AUSTRALIAN AIR FORCE.

Permanent Air Force: Medical Branch.

The appointment of Temporary Wing Commander, Acting Group Captain W. L. B. Stephens (1175) is terminated on demobilization with effect from 9th January, 1946.

Citizen Air Force: Medical Branch.

The appointments of the following officers are terminated on demobilization with effect from the dates indicated: Temporary Squadron Leader D. Scanlan (267221), 1st February, 1946, Temporary Flight Lieutenant V. W. J. O'Reilly (266733), 29th January, 1946, Temporary Squadron Leader E. S. Peters (251207), 28th February, 1946, (Temporary Flight Lieutenants) S. L. Strange (287407), 15th February, 1946, A. G. Nicholson (257529), 28th February, 1946, Flight Lieutenant, Acting Squadron Leader D. W. Short (283944), 12th February, 1946, Flight Lieutenant W. J. Simmonds (276864), 4th February, 1946, (Temporary Squadron Leaders) J. Isbister (261691), 11th February, 1946, F. W. Perrottet (262723), 27th February, 1946, Temporary Flight Lieutenant, Acting Squadron Leader E. F. Northcroft (266734), 26th February, 1946, Temporary Flight Lieutenant M. Barry (267236), 26th February, 1946, Flying Officer, Acting Flight Lieutenant G. F. Gee (36527), 17th December, 1945, (Temporary Squadron Leaders) R. G. Baker (252574), 18th January, 1946, J. D. Bishop (252373), 19th January, 1946, A. J. Campbell (251492), 30th January, 1946, (Temporary Squadron Leaders) A. G. McManis (261661), 4th February, 1946, G. W. Davies (261505), 7th February, 1946, O. H. Schneider (263716), 8th February, 1946, Temporary Flight Lieutenant G. A. Hodgson (263612), 5th February, 1946, Temporary Squadron Leader, Acting Wing Commander C. V. W. Brown (271467), 20th February, 1946, Flight Lieutenant, Acting Squadron Leader H. N. Merrington (273751), 21st February, 1946, Flight Lieutenant R. A. J. Stanton (253731), 12th March, 1946, (Temporary Squadron Leaders) W. T. H. Scales (263240), 7th December, 1945, J. S. Boxall (263226), 3rd January, 1946, W. B. Marsh (261768), 7th January, 1946, (Temporary Squadron Leaders) L. J. T. Murphy (251208), 1st February, 1946, J. H. Coto (252749), 8th February, 1946, (Temporary Flight Lieutenants) H. A. Murray (251867), 2nd February, 1946, R. T. Davies (257502), 5th February, 1946, L. C. G. Colville (256713), 18th February, 1946, H. R. Clegg (253408), 22nd February, 1946.

The appointment of Temporary Flight Lieutenant M. Zilko (297402) is terminated on demobilization with effect from 2nd April, 1946.—(Ex. Min. No. 139—Approved 22nd May, 1946.)

The appointment of Temporary Wing Commander S. F. Reid, O.B.E. (251174) is terminated on demobilization with effect from 8th February, 1946.

The appointment of Temporary Flight Lieutenant N. J. Chamberlain (256869) is terminated on demobilization with effect from 27th March, 1946.

The appointment of Temporary Flight Lieutenant B. Jarvis (267090) is terminated on demobilization with effect from 14th March, 1946.

Reserve: Medical Branch.

William Lodewyck Bosschart Stephens (1175) is appointed to a commission with the temporary rank of Wing Commander with effect from the 10th January, 1946.—(Ex. Min. No. 140—Approved 22nd May, 1946.)

Temporary Wing Commander J. C. Fulton, O.B.E. (251219), is transferred from the Active List with effect from 9th January, 1946.—(Ex. Min. No. 133—Approved 22nd May, 1946.)

Post-Graduate Work.

LECTURES AT SYDNEY.

THE Post-Graduate Committee in Medicine announces that a series of winter lectures will begin in June, 1946, four of which are as follows:

Monday, June 24.—"Congenital Heart Disease: Diagnosis and Surgical Treatment", Dr. B. T. Edye and Dr. Bruce Shallard.

Wednesday, June 26.—"Penicillin, Streptomycin and other Antibiotics", Colonel E. V. Keogh.

Monday, July 1.—"Medical Rehabilitation in Relation to Modern Medicine and Surgery", Dr. Douglas Galbraith.

Monday, July 8.—"Artificial Pneumothorax Therapy with some of its more recent Pitfalls including Endo-bronchial Disease", Dr. Maxwell James.

These lectures will be delivered at the Stawell Memorial Hall, 145, Macquarie Street, Sydney, and will begin at 4.30 o'clock p.m. An announcement regarding further lectures arranged will be made at a later date.

These winter lectures form part of the annual general course conducted by the Post-Graduate Committee. The annual subscription to this course is £1 1s., and includes attendance at the regular monthly film showings and lectures which are arranged from time to time. Members of this course are entitled to receive the *Post-Graduate Bulletin* at a fee of 10s. 6d. *per annum*. Inquiries should be made by communicating with the Post-Graduate Committee, 131, Macquarie Street, Sydney. Telephones: BW 7483, B 4606.

FILM AFTERNOON AT SYDNEY.

THE Post-Graduate Committee in Medicine announces that the following films will be shown in the Stawell Memorial Hall, 145, Macquarie Street, Sydney, at 4.15 o'clock p.m. on Wednesday, June 19, 1946: "Aseptic End-to-End Anastomosis of the Transverse Colon with Complementary Caecostomy", "Subtotal Thyreoidectomy for Multiple Nodular Goitre", "Primary Cleansing, Compression and Rest Treatment of Burns", "Varicose Veins: Their Treatment by the Modern Combined Ligation and Injection Treatment".

On Friday, June 28, 1946, at 4.15 o'clock p.m., the following film will be shown: "Kenny Concept of the Disease Infantile Paralysis: Early Diagnosis and How to Prevent Deformities." All medical practitioners are invited to be present.

Correspondence.

PSYCHOTHERAPY.

SIR: Imported films of recent months have introduced the new brief psychotherapy to the Australian public, and have illustrated its dramatic effect in the treatment of the neuroses by tackling the causes. These films are being widely discussed and the patients are beginning to reject their bromides and "nerve tonics" in their inquiry for psychotherapy. Some recent examples are "Lady in the Dark", in which Ginger Rogers as the leading lady is cured of anxiety neurosis in a few interviews, her dreams being dramatized and analysed; "The Seventh Veil", an English film now showing in which the heroine is cured of anxiety neurosis with attempted suicide, by narco-analysis; "The March of Time", demonstrating psychotherapy for the anxiety state in an American soldier; "Now, Voyager", with Bette Davis, dramatizing the treatment of an anxiety neurosis arising from maternal domination; "Diamond Horseshoe", in which the hero and heroine discuss psychology, and Newhall's "Manual of Psychiatry" is introduced to the audience. The book, if it exists, is not obtainable in Sydney. In "Duffy's Tavern" appears a short burlesque of psychotherapy. Another psychiatric picture on its way from America is "Spellbound", of which the Press report says, "one of the most important sequences is a 'dream' scene. By means of the dream a scientific treatment (psychotherapy?) results in the murder solution which has involved a strange young man suffering from amnesia".

The first textbook in psychosomatic medicine by Weiss and English (1943) is now available and opens up a new avenue in the treatment of such diseases as essential hypertension, cardio-vascular disease, rheumatism, dyspepsias, peptic ulcers, diabetes, asthma, "chronic appendicitis", migraine and many other hardy perennials.

Apparently new hope has arisen for the countless army of long-suffering neurotics, and victims of the psychosomatic diseases may look forward to a longer lease of life.

Yours, etc.,

A. A. PAIN.

Concord,
New South Wales,
June 4, 1946.

Obituary.

CYRUS BATH RETALLACK.

WE regret to announce the death of Dr. Cyrus Bath Retallack, which occurred on June 2, 1946, at Canberra.

ERNEST WESTON SUTCLIFFE.

WE regret to announce the death of Dr. Ernest Weston Sutcliffe, which occurred on June 6, 1946, at Deniliquin, New South Wales.

HAROLD WHITRIDGE DAVIES.

WE regret to announce the death of Harold Whitridge Davies, Professor of Physiology, University of Sydney, which occurred on June 8, 1946, at Sydney.

Nominations and Elections.

THE undermentioned have applied for election as members of the New South Wales Branch of the British Medical Association:

Hook, Reginald Harley, provisional registration, May, 1946 (Univ. Sydney), 19, Julia Street, Ashfield.

Chapman, Herbert Owen, M.B., Ch.M., 1907 (Univ. Sydney), 320, Piper Street, Bathurst.

Rosenthal, Curt, provisional registration in New South Wales, 1946 (Univ. Sydney), 128B, Brighton Boulevarde, North Bondi.

Prior, John, provisional registration in New South Wales, 1946 (Univ. Sydney), Lewisham Hospital, Lewisham.

Ratcliff, Colin Ray, M.B., B.S., 1943 (Univ. Sydney), 15, Copeland Street, Beecroft.

THE FEDERAL MEDICAL WAR RELIEF FUND.

THE following contributions to the Federal Medical War Relief Fund have been received:

New South Wales.

W. L. Kirkwood (second contribution), £56.

G. A. M. Heydon, £50.

Illawarra Suburbs Medical Association—K. W. Alexander, L. T. Allsop, G. W. Ashby, Maisie Asher, W. J. Binns, J. M. Byrne, H. B. Cribb, Ben Denning, E. R. Figtree, F. J. Graham, Leo J. Harrison, K. G. Hearne, A. H. Hodge, J. H. Hornbrook, F. J. Howell, D. W. Magill, E. H. Miles, K. F. Potts, N. Rau, K. S. Richardson, B. T. Shallard, W. F. Simmons, W. F. Smith, S. R. Stafford, A. C. Thomas, J. A. Vote, C. Warburton, £43 1s. 3d.

A. M. McIntosh, £25.

A. L. Dawson (second contribution), Anonymous, Eric O. Pockley, £20.

H. G. D. Cookson, F. Brown Craig, Ben Denning, F. S. Hansman, K. G. Hearne, S. G. Iceton, E. Marjory Little, A. W. Ross, Cecil Sim, W. C. Smith, £10 10s.

Anonymous, W. E. Giblin, C. L. S. Macintosh, C. T. B. Maisey, R. J. Pope, Helen M. Taylor, A. H. Tebbutt, J. Young-Wai, £10.

R. F. Back, C. G. Berge, J. Sheddon Davis, H. M. de Burgh, A. P. Findlay, E. H. Goulston, S. J. M. Goulston, J. R. D. Herlihy, E. P. Holland, Neil Joseph, C. M. Lawrie, M. J. Slattery, W. McP. Roberts, £5 5s.

W. C. McClelland, M. R. Morey, J. A. Paul, £5.

Laurence H. Hughes, J. Levy, £3 3s.

S. B. Clipsham, £3.

R. G. Banks-Smith, T. Whitley Burgess, R. L. Douglas, R. E. Longworth, J. P. E. O'Brien, A. H. Robertson, S. E. J. Robertson, R. F. K. West, J. S. Windeyer, J. E. Wiseman, £2 2s.

Anonymous, D. L. Graham, M. Lebanon, J. H. S. Waters, £1 1s.

Total: £536 16s. 3d.

Queensland.

T. A. Price, £50.

John J. Power, R. M. Murray, M. J. McKillop, L. M. McKillop, £10 10s.

R. Levy, £10.

Alex H. Marks, £5 5s.

H. S. Waters, £5.

G. Corones, £3 3s.

J. A. McGree, £2 2s.

Total: £117 10s.

Grand total: £12,434 9s. 8d.

Books Received.

"Principles and Practices of Inhalation Therapy", by Alvan L. Barach, M.D.; 1945. Oxford: Blackwell Scientific Publications, Limited. 9" x 6", pp. 334, with 59 illustrations. Price: 25s. net.

"Anæsthesia in Operations for Goitre", by Stanley Rowbotham, M.D., D.A.; 1945. Oxford: Blackwell Scientific Publications, Limited. 8¼" x 5¼", pp. 112, with many illustrations. Price: 12s. 6d.

"A Pocket Surgery", by Philip H. Mitchener, C.B., C.B.E., T.D., M.D., M.S. (London), F.R.C.S. (England), D.Ch.Hon. (Durham), D.L., and A. Hedley Whyte, D.S.O., T.D., M.B., M.S. (Durham), F.R.C.S. (England and Edinburgh); Second Edition; 1946. London: J. and A. Churchill, Limited. 7¼" x 4¼", pp. 280. Price 8s. 6d.

"The Problems of Family Life: An Environmental Study", by Agatha H. Bowley, Ph.D.; 1946. Edinburgh: E. and S. Livingstone, Limited. 7¼" x 5", pp. 114, with twenty photographs. Price: 5s. net, postage 6d.

"Behind Bamboo: An Inside Story of the Japanese Prison Camps", by Rohan D. Rivett; 1946. Sydney and London: Angus and Robertson, Limited. 8¼" x 5¼", pp. 418, with illustrations. Price 12s. 6d.

"The Physiological Basis of Medical Practice: A University of Toronto Text in Applied Physiology", by Charles Herbert Best, C.B.E., M.A., D.Sc. (London), F.R.S., F.R.C.P. (Canada), and Norman Burke Taylor, V.D., M.D., F.R.S. (Canada), F.R.C.S. (Edinburgh), F.R.C.P. (Canada), M.R.C.S. (England), L.R.C.P. (London); Fourth Edition; 1945. London: Baillière, Tindall & Cox. 10" x 6½", pp. 1,186, with many illustrations. Price: 55s.

"A Pocket Medical Dictionary", compiled by Lois Oakes, S.R.N., D.N. (London and Leeds), assisted by T. B. Davie, B.A., M.D. (Liverpool), F.R.C.P. (London); Seventh Edition; 1946. Edinburgh: E. and S. Livingstone, Limited. 4½" x 3¼", pp. 471. Price: 4s. net, postage 3d.

"Soil and Civilization", by Elyne Mitchell; 1946. Sydney, London: Angus and Robertson, Limited. 7¼" x 5", pp. 152. Price: 4s. 6d.

"The 1945 Year Book of Dermatology and Syphilology", edited by Marion B. Sulzberger, M.D., assistant editor Rudolf L. Baer, M.D.; 1946. Chicago: The Year Book Publishers, Incorporated. Melbourne: W. Ramsay (Surgical) Proprietary Limited. 7" x 4½", p. 360, with illustrations. Price: 24s.

"The 1945 Year Book of Pædiatrics", edited by Isaac A. Abt, D.Sc., M.D., with the collaboration of Arthur F. Abt, B.S., M.D., Comdr., M.S., U.S.N.R.; 1946. Chicago: The Year Book Publishers, Incorporated. Melbourne: W. Ramsay (Surgical) Proprietary, Limited. 7" x 4½", pp. 448, with many illustrations. Price: 24s.

Medical Appointments.

Dr. C. E. Cook has been appointed a member of the Perth Hospital Board, Perth.

Dr. J. W. Van R. Hoets and Dr. L. W. Dunlop have been appointed members of the Police Medical Board, New South Wales.

Dr. P. G. Dane, of Melbourne, has been appointed a corresponding member of the Royal Zoological Society.

Dr. F. S. Hone, Sir Trent Champion de Crespigny, Dr. R. E. Magarey, Dr. G. A. Lendon and Dr. I. B. Jose have been appointed members of the Advisory Committee under the *Hospitals Act*, 1934-1941, of South Australia.

Dr. E. J. Ryan has been appointed Government Medical Officer at Tully, Queensland.

Diary for the Month.

JUNE 18.—New South Wales Branch, B.M.A.: Medical Politics Committee.
JUNE 19.—Western Australian Branch, B.M.A.: General Meeting.
JUNE 20.—New South Wales Branch, B.M.A.: Clinical Meeting.
JUNE 20.—Victorian Branch, B.M.A.: Executive Meeting.
JUNE 25.—New South Wales Branch, B.M.A.: Ethics Committee.
JUNE 26.—Victorian Branch, B.M.A.: Council Meeting.
JUNE 27.—South Australian Branch, B.M.A.: Scientific Meeting.
JUNE 27.—South Australian Branch, B.M.A.: Council Meeting.
JUNE 27.—New South Wales Branch, B.M.A.: Branch Meeting.
JUNE 28.—Queensland Branch, B.M.A.: Council Meeting.
JULY 2.—New South Wales Branch, B.M.A.: Council Quarterly.
JULY 3.—Victorian Branch, B.M.A.: Branch.
JULY 3.—Western Australian Branch, B.M.A.: Council Meeting.
JULY 5.—Queensland Branch, B.M.A.: Branch Meeting.
JULY 9.—Tasmanian Branch, B.M.A.: Ordinary Meeting.
JULY 9.—New South Wales Branch, B.M.A.: Executive and Finance Committee.
JULY 9.—New South Wales Branch, B.M.A.: Organization and Science Committee.
JULY 11.—South Australian Branch, B.M.A.: Council Meeting.
JULY 12.—Queensland Branch, B.M.A.: Council Meeting.
JULY 16.—New South Wales Branch, B.M.A.: Medical Politics Committee.

Medical Appointments: Important Notice.

MEDICAL PRACTITIONERS are requested not to apply for any appointment mentioned below without having first communicated with the Honorary Secretary of the Branch concerned, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

New South Wales Branch (Honorary Secretary, 135, Macquarie Street, Sydney): Australian Natives' Association; Ashfield and District United Friendly Societies' Dispensary; Balmain United Friendly Societies' Dispensary; Leichhardt and Petersham United Friendly Societies' Dispensary; Manchester Unity Medical and Dispensing Institute, Oxford Street, Sydney; North Sydney Friendly Societies' Dispensary Limited; People's Prudential Assurance Company Limited; Phœnix Mutual Provident Society.

Victorian Branch (Honorary Secretary, Medical Society Hall, East Melbourne): Associated Medical Services Limited; all Institutes or Medical Dispensaries; Australian Prudential Association, Proprietary, Limited; Federated Mutual Medical Benefit Society; Mutual National Provident Club; National Provident Association; Hospital or other appointments outside Victoria.

Queensland Branch (Honorary Secretary, B.M.A. House, 225, Wickham Terrace, Brisbane, B.17): Brisbane Associated Friendly Societies' Medical Institute; Bundaberg Medical Institute. Members accepting LODGE appointments and those desiring to accept appointments to any COUNTRY HOSPITAL or position outside Australia are advised, in their own interests, to submit a copy of their Agreement to the Council before signing.

South Australian Branch (Honorary Secretary, 178, North Terrace, Adelaide): All Lodge appointments in South Australia; all Contract Practice appointments in South Australia.

Western Australian Branch (Honorary Secretary, 205, Saint George's Terrace, Perth): Wiluna Hospital; all Contract Practice appointments in Western Australia. All government appointments with the exception of those of the Department of Public Health.

Editorial Notices.

MANUSCRIPTS forwarded to the office of this journal cannot under any circumstances be returned. Original articles forwarded for publication are understood to be offered to THE MEDICAL JOURNAL OF AUSTRALIA alone, unless the contrary be stated.

All communications should be addressed to the Editor, THE MEDICAL JOURNAL OF AUSTRALIA, The Printing House, Seamer Street, Glebe, New South Wales. (Telephones: MW 2651-2).

Members and subscribers are requested to notify the Manager, THE MEDICAL JOURNAL OF AUSTRALIA, Seamer Street, Glebe, New South Wales, without delay, of any irregularity in the delivery of this journal. The management cannot accept any responsibility or recognize any claim arising out of non-receipt of journals unless such a notification is received within one month.

SUBSCRIPTION RATES—Medical students and others not receiving THE MEDICAL JOURNAL OF AUSTRALIA in virtue of membership of the Branches of the British Medical Association in the Commonwealth can become subscribers to the journal by applying to the Manager or through the usual agents and booksellers. Subscriptions can commence at the beginning of any quarter and are renewable on December 31. The rates are £1 for Australia and £2 5s. abroad per annum payable in advance.